DRC-2011-007747

DENISON MINES

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Received
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Division of
Radiation Control

December 15, 2011

VIA E-MAIL AND OVERNIGHT DELIVERY

Mr. Rusty Lundberg
Utah Department of Environmental Quality
195 North 1950 West
P.O. Box 144850
Salt Lake City, UT 84114-4850

Re: Application by Denison Mines (USA) Corp. ("Denison") for an amendment to State of Utah Radioactive Materials License No. 1900479 for the White Mesa Uranium Mill (the "Mill") to authorize processing of Sequoyah Fuels Corporation, Inc. ("SFC") alternate feed material (the "Uranium Material")

Dear Mr. Lundberg:

We are pleased to enclose with this letter two copies of an application to amend the Mill's Radioactive Materials License No. 1900479 to authorize receipt and processing of the Uranium Material as an alternate feed material primarily for the recovery of uranium and disposal of the resulting tailings in the Mill's tailings impoundments as 11e.(2) byproduct material.

The Uranium Material must be removed from the SFC, Inc. facility under a schedule established by the United States Nuclear Regulatory Commission pursuant to the facility's Site Decommissioning Plan. Please contact us as to the anticipated timeframe required for DRC to review this application.

Please contact me if you have any questions or require any further information.

Yours very truly,

DENISON MINES (USA) CORP.

Jo Ann Tischler

Jo Ann Tischler
Director, Compliance and Permitting

cc: David C. Frydenlund
Ron F. Hochstein
Harold R. Roberts
David E. Turk
Katherine A. Weinel

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REQUEST TO AMEND RADIOACTIVE MATERIAL LICENSE DENISON MINES (USA) CORP. WHITE MESA URANIUM MILL SAN JUAN COUNTY, UTAH AND ENVIRONMENTAL REPORT

for Processing of
Alternate Feed Material from
Sequoyah Fuels Corporation

Prepared for:

Utah Department of Environmental Quality
Division of Radiation Control
P.O. Box 144850
Salt Lake City, UT 84114-4850

Prepared by:

Denison Mines (USA) Corp.
1050 17th Street, Suite 950,
Denver, CO 80265

December 2011

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ATTACHMENTS

1.0 INTRODUCTION

1.1 White Mesa Mill

Denison Mines (USA) Corp. ("Denison") operates the White Mesa Uranium Mill (the "Mill") located approximately six miles south of Blanding, Utah. The Mill processes natural (native, raw) uranium ores and alternate feed materials. Alternate feed materials are uranium-bearing materials other than natural ores, that meet the criteria specified in the United States Nuclear Regulatory Commission's ("NRC's") *Interim Position and Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores* (November 30, 2000) (the "Alternate Feed Guidance"). Alternate feed materials are processed as "ore" at the Mill primarily for their source material content. As a result, all waste associated with this processing is 11e.(2) byproduct material.

1.2 Proposed Action

This is a request for an amendment to State of Utah Radioactive Materials License No. UT 1900479 to authorize receipt and processing of certain uranium containing materials. These materials are raffinate sludges resulting from purification and conversion of natural uranium concentrates (yellowcake) in a former uranium conversion facility owned by the Sequoyah Fuels Corporation ("SFC") near Gore, Oklahoma (the "Facility" or the "Site"). For ease of reference, the uranium bearing material that results from this process, described further in Section 2, is referred to herein as "Uranium Material".

1.3 Purpose of Action

The Uranium Material contains greater than 0.05% uranium on both a wet and dry basis. The NRC issued Source Material License SUB-1010 to SFC for the Uranium Material in 1970. After 1993, the license was modified to a reclamation license and the regulatory authority for the SFC facility and the Uranium Material was transferred to the State of Oklahoma Department of Environmental Quality.

From 1970 to 1993, the facility chemically converted uranium ore concentrates (yellowcake) to uranium hexafluoride under NRC Source Material License Number SUB-1010. From 1987 to 1993, other circuits at the facility also converted depleted uranium hexafluoride into depleted uranium tetrafluoride. The Uranium Material consists only of residuals from the conversion of natural uranium yellowcake to uranium hexafluoride.

Denison has been requested by SFC to make this application to process the Uranium Material as an alternate feed material at the Mill and to dispose of the resulting tailings in the Mill's tailings impoundments as 11e.(2) byproduct material. Approval of this application will allow the recovery of valuable uranium, a resource that would otherwise be lost to direct disposal and will afford SFC a cost-effective and productive mechanism for managing the material generated as part of the Facility reclamation.

1.4 Amendment Application and Environmental Report

This application is intended to fulfill the requirements of an application for an amendment to the Mill's Radioactive Materials License set out in Utah Administrative Code ("UAC") R313-22-38 and includes the Environmental Report required by UAC R313-24-3 to be contained in such an application.

For ease of review, this application contains a cross reference to the Utah Division of Radiation Control's ("DRC's") Interrogatory Template for Review of License Amendment Request and Environmental Report under UAC R313-24 that was provided to Denison. The cross reference is provided in a table format in Attachment 6.

2.0 MATERIAL COMPOSITION AND VOLUME

2.1 General

The Faciliy is a former uranium conversion facility that operated from 1970 to 1993. The facility was constructed and operated by SFC, as a subsidiary of Kerr-McGee Nuclear Corporation. In 1983 Kerr-McGee Nuclear Corporation split into Quivira Mining Corporation and SFC, which maintained control of the Facility. SFC was sold to General Atomics Corporation in 1988 which continued to operate the Facility until 1993.

From 1970 to 1993, the Facility chemically converted uranium ore concentrates (yellowcake) to uranium hexafluoride under NRC Source Materials License Number SUB-1010. From 1987 to 1993, the Facility also converted depleted uranium hexafluoride into depleted uranium tetrafluoride in a different circuit. The Uranium Material consists only of residuals from the conversion of natural uranium yellowcake to uranium hexafluoride.

2.2 Historical Summary of Sources

The Uranium Material consists of the raffinate sludge, produced as a byproduct of the yellowcake conversion process described below.

This yellowcake conversion process included two primary purification steps: digestion followed by solvent extraction. Digestion occurred by dissolving the uranium in nitric acid. The resulting slurry was subjected to solvent extraction using tributyl phosphate diluted with n-hexane. Process conditions were controlled to extract uranium into the organic phase. The milling impurities remained in the aqueous phase, a dilute nitric acid mixture termed raffinate.

The aqueous raffinate stream is primarily a solution of nitric acid, metallic salts, and trace quantities of uranium and radioactive decay products of natural uranium, primarily Th-230 and Ra-226. The raffinate stream also contained trace quantities of Th-232 which is often found in natural uranium ores. The aqueous raffinate stream was combined with spent sodium hydroxide from nitrous oxide scrubber systems and waste sodium carbonate solutions. The untreated raffinate stream from solvent extraction was pumped to an impoundment and allowed to cool. Anhydrous ammonia was added to the raffinate solution to convert the dilute nitric acid to ammonium nitrate. The addition of the anhydrous ammonia also increased the pH of the raffinate solution causing the metallic salts and trace quantities of uranium, thorium, and radium to precipitate and settle out in the impoundments as raffinate sludge.

Denison has been requested by SFC to make this application to process the Uranium Material as an alternate feed material at the Mill and to dispose of the resulting tailings in the Mill's tailings impoundments as 11e.(2) byproduct material, in an effort to provide SFC with an option for ultimate processing and disposal of the Uranium Material. By providing SFC with the option of processing the Uranium Material at the Mill, SFC will be given the option of recycling the Uranium Material for the recovery of valuable uranium, a resource that would otherwise be lost to direct disposal.

SFC has requested that Denison recycle the uranium material and has asked that Denison submit this Amendment Request. SFC estimates that the total volume of Uranium Material is expected to be approximately 11,112 tons gross weight at 45.1 percent moisture (5,011 tons dry weight). It has been Denison's experience with other alternate feeds from comparable sources that the initial estimate may increase by as much as 50 percent or more by the time of receipt (due to factors such as under-estimation of numbers of containers, changes in moisture content, and other variables). Therefore, this request for Amendment is for approval of up to 16,700 tons gross weight (7,520 tons dry weight) of Uranium Material, to ensure that all the Uranium Material is covered by this Amendment.

2.3 Radiochemical Data

As noted, the process history demonstrates that the Uranium Material results from the precipitation of impurities during the refining and conversion of natural uranium concentrates to uranium hexafluoride. SFC has estimated that the current Uranium Material has a uranium content ranging from 0.7 to 1.0 dry weight percent natural uranium or 0.8 to 1.2 dry weight percent U_3O_8; and 0.3 to 0.5 wet weight percent natural uranium or 0.4 to 0.6 wet weight percent U_3O_8. Thorium-232 content will likely range from 1.0 to 4.5 dry weight percent and may be expected to average approximately 2.2 dry weight percent. A more detailed radiological characterization of the Uranium Materials (see Section 2.5.1, below) is contained in the Radioactive Materials Profile Record ("RMPR") (Attachment 2). The radionuclide activity concentration of the Uranium Material is comparable to Arizona Strip breccia pipe ores and alternate feed materials which the Mill is currently licensed to receive (see Section 2.5.1, below).

2.4 Physical and Chemical Data

Physically, the Uranium Material is raffinate sludge with no free liquid, consisting of moist solids containing residual amounts of uranium and other metals. The chemical characterization data for the Uranium Materials is set out in the RMPR (Attachment 2). As with the radionuclides and as discussed in more detail in Section 4.4 below, all the chemical constituents in the Uranium Material have either been reported to be, or can be assumed to be, already present in the Mill's tailings system or were reported in other licensed alternate feeds, at levels generally comparable to or higher than those reported in the Uranium Materials.

2.5 Comparison to Other Ores and Alternate Feed Materials Licensed for Processing at the Mill

2.5.1 <u>Ores and Alternate Feed Materials With Similar Radiological Characteristics</u>

With an average uranium content of approximately 0.95 to 1.23 percent U_3O_8, the Uranium Material is comparable to a high-grade Arizona Strip breccia pipe uranium ore. Arizona Strip ores typically average from about 0.40 percent to over 1 percent U_3O_8.

The estimated average content of total natural thorium ("Th-nat") of approximately 2.2 dry weight percent is higher than normally encountered with natural ores but well within the range of previously licensed alternate feed materials at the Mill.

For example, the average concentrations of Th-nat in the W.R. Grace and Heritage Minerals alternate feed materials averaged approximately 7.27 percent and many other alternate feed materials have had elevated concentrations of Th-nat. The Uranium Material will be handled at the Mill under the Mill's radiation safety program in a manner appropriate for such materials.

2.5.2 <u>Ores and Alternate Feed Materials With Similar Chemical/Metal Characteristics</u>

The Uranium Material is physically and chemically comparable to previously-approved alternate feed materials that the Mill has processed. As discussed in more detail in Section 4.5 below, all the constituents in the Uranium Material have either been reported to be, or can be assumed to be, already present in the Mill's tailings system or were reported in other licensed alternate feeds, at levels generally comparable to or higher than those reported in the Uranium Material.

3.0 REGULATORY CONSIDERATIONS

3.1 Alternate Feed Guidance

The Alternate Feed Guidance provides that if it can be determined, using the criteria specified in the Alternate Feed Guidance, that a proposed feed material meets the definition of "ore", that it will not introduce a hazardous waste not otherwise exempted (unless specifically approved by the EPA (or State) and the long-term custodian), and that the primary purpose of its processing is for its source material content, the request can be approved.

3.2 Uranium Material Qualifies as "Ore"

According to the Alternate Feed Guidance, for the tailings and wastes from the proposed processing to qualify as 11e.(2) byproduct material, the feed material must qualify as "ore". NRC has established the following definition of ore: Ore is a natural or native matter that may be mined and treated for the extraction of any of its constituents or any other matter from which source material is extracted in a licensed uranium or thorium mill. The Uranium Material is an "other matter" which will be processed primarily for its source material content in a licensed uranium mill, and therefore qualifies as "ore" under this definition. Further, the uranium concentration of the Uranium Material is greater than 0.05 percent on both a wet and dry basis, and the Uranium Material is an ore, the entire mass of Uranium Material is therfore Source Material.

3.3 Uranium Material Not Subject to RCRA

3.3.1 <u>General</u>

The Alternate Feed Guidance currently provides that if a proposed feed material contains hazardous waste, listed under Section 261.30-33, Subpart D, of 40 CFR (or comparable RCRA authorized State regulations), it would be subject to EPA (or State) regulation under RCRA. However, the Guidance provides that if the licensee can show that the proposed feed material does not consist of a listed hazardous waste, this issue is resolved. NRC guidance further states that feed material exhibiting only a characteristic of hazardous waste (ignitability, corrosivity, reactivity, toxicity) that is being recycled, would not be regulated as hazardous waste and could therefore be approved for extraction of source material. The Alternate Feed Guidance concludes that if the feed material contains a listed hazardous waste, the licensee can process it only if it obtains EPA (or State) approval and provides the necessary documentation to that effect. The Alternate Feed Guidance also states that NRC staff may consult with EPA (or the State) before making a determination on whether the feed material contains listed hazardous waste.

Subsequent to the date of publication of the Alternate Feed Guidance, NRC recognized that, because alternate feed materials that meet the requirements specified in the Alternate Feed Guidance must be ores, any alternate feed materials that contain greater than 0.05% source material are considered source material under the definition of source material in 10CFR 40.4 and hence exempt from the requirements of RCRA under 40CFR 261.4(a)(4). See *Technical Evaluation Report, Request to Receive and Process Molycorp Site Material* issued by the NRC on December 3, 2001 (the "Molycorp TER"). As a result, any such alternate feed ores are exempt from RCRA, regardless of whether they would otherwise have been considered to contain listed or characteristic hazardous wastes. Since the Uranium Material contains greater than 0.05% source material, it is exempt from RCRA, regardless of its process history or constituents, and no further RCRA analysis is required. Further, the Uranium Material has been classified as 11e.(2) byproduct material by NRC under 40 CFR 261.4(a)(4) under SFC's License Amendment 29, dated December 11, 2002. 11e.(2) byproduct material is exempt from RCRA, and for this reason also the Uranium Material is exempt from RCRA.

Nevertheless, because the Alternate Feed Guidance has not yet been revised to reflect this position recognized by NRC in the Molycorp TER, and because it is not necessary to rely on the NRC's classification of the Uranium Material as 11e.(2) byproduct material (which in fact should be considered determinative of this issue) Denison will demonstrate below that, even if the Uranium Material were not considered source material or 11e.(2) byproduct material, and as such exempt from RCRA, the Uranium Material would not, in any event, contain any RCRA listed hazardous wastes, as required under the Alternate Feed Guidance as currently worded.

3.3.2 Denison/UDEQ Listed Hazardous Waste Protocol

In a February, 1999 decision regarding the Mill, the Atomic Safety and Licensing Board Presiding Officer suggested there was a general need for more specific protocols for determining if alternate feed materials contain hazardous components. In a Memorandum and Order of February 14, 2000, the full Commission of the NRC also concluded that this issue warranted further staff refinement and standardization. Cognizant at that time of the need for specific protocols to be used in making determinations as to whether or not any alternate feeds considered for processing at the Mill contained listed hazardous wastes, Denison took a proactive role in the development of such a protocol. Accordingly, Denison established a "Protocol for Determining Whether Alternate Feed Materials are Listed Hazardous Wastes" (November 22, 1999). This Protocol was developed in conjunction with, and accepted by, the State of Utah Department of Environmental Quality ("UDEQ") (Letter of December 7, 1999). Copies of the Protocol and UDEQ letter are provided in Attachment 3. The provisions of the protocol can be summarized as follows:

a) In all cases, the protocol requires that Denison perform a source investigation to collect information regarding the composition and history of the material, and any existing generator or agency determinations regarding its regulatory status;

b) The protocol states that if the material is known -- by means of chemical data or site history -- to contain no listed hazardous waste, Denison and UDEQ will agree that the material is not a listed hazardous waste;

c) If such a direct confirmation is not available, the protocol describes the additional chemical process and material handling history information that Denison will collect and evaluate to assess whether the chemical contaminants in the material resulted from listed or non-listed sources;

d) The protocol also specifies the situations in which ongoing confirmation/acceptance sampling will be used, in addition to the chemical process and handling history, to make a listed waste evaluation;

e) If the results from any of the decision steps indicate that the material or a constituent of the material did result from a RCRA listed hazardous waste or RCRA listed process, the material will be rejected; and

f) The protocol identifies the types of documentation that Denison will obtain and maintain on file, to support the assessment for each different decision scenario.

The above components and conditions of the Protocol are summarized in a decision tree diagram, or logic flow diagram, included in Attachment 3, and hereinafter referred to as the "Protocol Diagram".

3.3.3 Application of the Listed Hazardous Waste Protocol

Denison has conducted a RCRA evaluation of the Uranium Material and, specifically, applied the Listed Hazardous Waste Protocol to the Uranium Material. A copy of the analysis is included as Attachment 4. The analysis evaluated the following regulatory history to develop the conclusions enumerated below.

The NRC issued Source Material License SUB-1010 to Sequoyah Fuels in 1970 for conversion processing of natural uranium concentrates/yellowcake, which process resulted in the generation of the Uranium Material. This License was modified by the NRC from an operational to a reclamation license on September 30, 1990.

In 1993, the U.S. Environmental Protection Agency ("EPA") issued an Administrative Order on Consent ("AOC") requiring that the Facility should be remediated pursuant to RCRA. Pursuant to the AOC, SFC prepared a RCRA Facility Investigation Report and RCRA Corrective Action Plan.

On December 11, 2002, NRC issued Amendment 29 to SFC's Source Material License, classifying the Uranium Material as 11e.(2) byproduct material. In a communication to EPA in 2006, NRC affirmed that:

1. the Site was subject to the regulatory oversight of NRC,
2. the Site therefore was to be decommissioned under 10CFR Part 40, Appendix A, and
3. NRC would ensure that the contaminants addressed by the AOC would be properly managed.

NRC's 2002 communication requested that EPA close their AOC. EPA subsequently terminated the AOC in December 2009.

The Uranium Material, which has materially not changed in form or content since first being produced in 1970, remains definitional source material as per 40 CFR Part 261.4, and is explicitly exempt from regulation under RCRA. It has also been classified as 11e.(2) byproduct material by NRC, and for this reason also is explicitly exempt from regulation under RCRA.

The Uranium Material has not been classified or treated as listed hazardous waste nor has it been in contact with any listed hazardous wastes.

The RCRA analysis concluded that, based on the information that is available,

1. The Uranium Material is not a RCRA listed hazardous waste because it has been classified by NRC as 11e.(2) byproduct material and is therefore exempt from regulation under RCRA.

2. Even if the Uranium Material had not been classified as 11e.(2) byproduct material, the Uranium Material would not be a RCRA listed hazardous waste because it is an ore that has a natural uranium content of greater than 0.05 weight percent, is therefore source material and, as a result, is exempt from regulation under RCRA.

3. Even if the Uranium Material were not 11e.(2) byproduct material or source material, it would not be a RCRA listed hazardous waste for the following additional reasons:

   a) It was generated from a known process under the control of the generator, who has provided an affidavit declaring that the Uranium Material is not and does not contain RCRA listed hazardous waste. This determination is consistent with Boxes I and 2 and Decision Diamonds 1 and 2 in the Denison/UDEQ Protocol Diagram;

   b) The two volatile organic compounds detected at very low concentrations in the Uranium Material have been attributed to laboratory contamination and are not actual contaminants in the Uranium Material;

   c) None of the metals in the Uranium Material samples came from RCRA listed hazardous waste sources. This determination is consistent with Box 8 and Decision Diamonds 9 through 11 in the Denison/UDEQ Protocol Diagram.

4. The Uranium Material does not exhibit any of the RCRA characteristics of ignitability, corrosivity, reactivity, or toxicity for any constituent.

3.3.4 Radioactive Material Profile Record

Furthermore, in order for Denison to characterize the Uranium Material, SFC has completed Denison's RMPR form, stating that the material is not RCRA listed waste. The certification section of the RMPR includes the following text:

> I certify that the material described in this profile has been fully characterized and that hazardous constituents listed in 10 CFR 40 Appendix A Criterion 13 which are applicable to this material have been indicated on this form. I further certify and warrant to Denison that the material represented on this form is not a hazardous waste as identified by 40 CFR 261 and/or that this material is exempt from RCRA regulation under 40 CFR 261.4(a)(4).

3.3.5 Conclusion

Because the Uranium Material is 11e.(2) byproduct material and/or is an ore that contains greater than 0.05% source material, the Uranium Material is exempt from RCRA under 40 CFR

261.4(a)(4). In addition, based on the site history, the determinations by SFC, and the analysis of the Denison's chemical engineer, Denison has also concluded that, even if not exempted from RCRA under 40 CFR 261.4(a)(4), on the application of the Listed Hazardous Waste Protocol, Uranium Material from the Facility would not be listed hazardous waste subject to RCRA.

3.4 Uranium Material is Processed Primarily for its Source Material Content

In its Memorandum and Order, February 14, 2000, In the Matter of International Uranium (USA) Corp. (Request for Materials License Amendment), Docket No. 40-8681-MLA-4, the NRC concluded that an alternate feed material will be considered to be processed primarily for its source material content if it is reasonable to conclude that uranium can be recovered from the Uranium Material and that the processing will indeed occur. The Uranium Material will be processed for the recovery of uranium at the Mill. Based on the uranium content of the Uranium Material, its physical and chemical characteristics, and Denison's success in recovering uranium from a variety of different types of materials, including materials that were similar to the Uranium Materials, at the Mill, it is reasonable to expect that uranium can be recovered from the Uranium Material. As a result, the Uranium Material is an ore that will be processed primarily for the recovery of source material, and the tailings resulting from processing the Uranium Material will therefore be 11e.(2) byproduct material under the definition set out in 10CFR 40.4.

4.0 ENVIRONMENT AFFECTED

4.1 General

The Mill is a licensed uranium processing facility that has processed to date over 4,000,000 tons of uranium-bearing conventionally mined ores and alternate feed materials primarily for the recovery of uranium, with the resulting tailings being permanently disposed of as 11e.(2) byproduct material in the Mill's tailings impoundments. Environmental impacts associated with such previously licensed Mill operations have been thoroughly evaluated and documented in the past (see, for example, the original 1979 Final Environmental Statement ("FES") for the Mill, Environmental Assessments ("EAs"), dated 1985 and 1997, an EA for the Mill's reclamation plan dated 2000, EAs for alternate feed materials dated 2001 and 2002, in each case prepared by the NRC, the Safety Evaluation Report for the Receipt, Storage and Processing of Fansteel Alternate Feed Material prepared by DRC, and Safety Evaluation Reports prepared in connection with the re-lining of tailings Cell 4A and construction of tailings Cell 4B.) The Uranium Material will also be processed as an alternate feed at the Mill for the recovery of uranium and the resulting tailings will be permanently disposed of in the Mill's tailings impoundments as 11e.(2) byproduct material, in a similar fashion to other conventionally mined ores and alternate feed materials that have been processed or licensed for processing at the Mill.

Accordingly, this Environmental Report will focus on the various pathways for potential radiological and non-radiological impacts on public health, safety and the environment and determine if the receipt and processing of the Uranium Material would result in any potential significant *incremental* impacts over and above previously licensed activities.

The pathways that are analyzed are the following:

a) potential impacts from transportation of the Uranium Material to the Mill;
b) potential impacts from radiation released from the Uranium Material while in storage at the Mill;

c) any chemical reactions that may occur in the Mill's process;
d) any potential reactions or inconsistencies with the existing tailings or tailings facilities;
e) potential impacts on groundwater;
f) potential impacts on surface water;
g) potential airborne radiologic impacts;
h) potential radon and gamma impacts; and
i) worker health and safety issues.

These potential pathways will be discussed in the following sections of this document. The findings below will demonstrate that, because all the constituents in the Uranium Material have either been reported to be, or can be assumed to be, already present in the Mill's tailings system or were reported in other licensed alternate feeds, at levels generally comparable to or higher than those reported in the Uranium Material, the resulting tailings will not be significantly different from existing tailings at the facility. As a result, there will be no incremental public health, safety or environmental impacts over and above previously licensed activities.

Processing of the Uranium Material involves no new construction, no additional use of land, no modification of the Mill, main circuit, alternate feed circuit, or tailings system of any significance. The Uranium Material contains no new chemical or radiological constituents beyond those already processed in ores and approved alternate feeds, or already known or expected to be present in the tailings system. As a result, there are no anticipated impacts to the environment via any of the above pathways, above those already anticipated in the existing environmental statements and environmental assessments associated with the Mill's approved license, which have addressed:

- Geology and soils,
- Liquid effluents,
- Airborne effluents,
- Direct radiation,
- Management of sanitary wastes,
- Human and ecological receptor hazard assessment,
- Mill accidents,
- Transportation accidents,
- Groundwater impacts,
- Surface water impacts,
- Mill decommissioning,
- Land, structures, site and tailings reclamation,
- Internal inspection program,
- Corporate organization and management,
- Radiological protection training,
- Security,
- Quality assurance for all phases of the milling program,
- Operational effluent monitoring,
- Operational radiological monitoring,
- Meteorological monitoring,
- Capacity of tailings system over the lifetime of the Mill operations,
- Permanent isolation of tailings including slope stability, settlement, and liquefaction potential,

- Consideration of below-grade disposal of tailings,
- Tailings design requirements including site location and layout, site area, geography, land use and demographic surveys, use of adjacent lands and waters, population distribution, demography, meteorology, air models, geology and soils, seismology, hydrologic description of the site, surface water, flooding determination, surface water profiles, channel velocities, shear stresses, groundwater hydrology, radiological surveys, site and uranium mill tailings characteristics, disposal cell cover engineering design, and design of erosion protection covers,
- Groundwater protection standards,
- Liner construction,
- Prevention of overtopping,
- Dike design, construction, and maintenance,
- Cover and closure at end of operations including radon attenuation, gamma attenuation, and cover radioactivity content,
- Effectiveness of final radon barrier including verification and reporting ,
- Radium in cover materials,
- Radionuclides other than radium in soils,
- Non-radiological hazards,
- Completion of final radon barrier,
- Preoperational and operational monitoring programs,
- Effluent control during operations including gaseous and airborne particulates, liquids and solids, contaminated equipment, sources and controls of Mill wastes and effluents, sanitary and other Mill waste systems, effluents in the environment, effluent control techniques, external radiation monitoring program, airborne radiation monitoring, exposure calculations, bioassay program, contamination control program, airborne effluent and environmental monitoring program, groundwater and surface water monitoring program, control of windblown tailings and ore,
- Daily tailings inspections,
- Financial surety,
- Costs of long-term surveillance,
- Application for a groundwater discharge permit,
- Groundwater permit compliance monitoring,
- Background groundwater quality determination,
- Submission of data,
- Reporting of mechanical problems or discharge system failures,
- Correction of adverse effects, and
- Out of compliance status and procedures,

among other issues and requirements.

4.2 Transportation Considerations

4.2.1 Packaging and Mode of Transportation

The Uranium Material from the Facility will be shipped by truck in SuperSaks of approximately 0.95 tons each, and approximately 21 bags per truckload. The bags will be shipped in truck trailers with poly-lined bottoms and sides, either box-style trailers, or flatbed style trailers with sidewalls and tarp covers. The Uranium Material will be shipped as Radioactive LSA I (low specific activity) Hazardous Material as defined by DOT regulations. SFC will arrange with a materials handling contractor for the proper marking, labeling, placarding, manifesting and transport of each shipment of the Uranium Material. Shipments will be tracked by the shipping company from the Facility until they reach the Mill. Each shipment will be "exclusive use" (i.e., the only material on each vehicle will be the Uranium Material). SFC will ship a total of approximately 555 to 835 trucks over a period of 22 to 33 weeks, or an average of twenty five trucks per week for 22 to 33 weeks, or 5 trucks per day based on 5 days of shipping per week.

The trucks involved in transporting the Uranium Material to the Mill site will be surveyed and decontaminated, as necessary, prior to leaving the Facility for the Mill and again prior to leaving the Mill site.

4.2.2 Transportation Impacts

For the following reasons, it is not expected that transportation impacts associated with the movement of the Uranium Material by train and truck from the Facility to the Mill will be significant:

a) Radiological Matters
The transport of radioactive materials is subject to limits on radiation dose rate measured at the transport vehicle as specified in the US Code of Federal Regulations. The external radiation standards for these shipments are specified in 10 CFR 71.47 sections (2) and (3) as less than 200 millirems per hour ("mrem/h") at any point on the outer surface of the vehicle, and less than 10 mrem/h at any point two meters from the outer lateral surfaces of the vehicle. All exclusive use trailer trucks will be scanned by SFC prior to departure from the Facility to ensure that these limits are satisfied. From a radiologic standpoint, the Uranium Material is within the bounds of other ores and alternate feed materials licensed for processing at the Mill. The Uranium Material will be transported in covered exclusive use box-style or flatbed-style trailers, in a similar fashion to other conventional ores, and as a result there will be no significant incremental radiological impacts associated with transportation of Uranium Material to the Mill, over and above other previously licensed ores and alternate feed materials at the Mill or from licensed activities at other facilities in the State of Utah.

b) Traffic Volume Matters
(i) *Comparison to Licensed Mill Operations*
Section 4.8.5 of the 1979 FES for the Mill noted that during the operations period, when area mining was at expected peak levels, approximately 68 round trips on local highways would be made by 30-ton ore trucks to the Mill per day (see the 1978 Dames and Moore Environmental Report for the Mill, p. 5-34). In contrast, approximately 25 truck loads per week (5 per day) will be transported from the Facility to the Mill for a total period of approximately 22 to 33 weeks.

In addition, based on a licensed yellowcake capacity of 4,380 tons U_3O_8 per year (Mill license condition 10.1) a maximum of approximately 8,760,000 pounds of yellowcake would require shipment from the Mill to conversion facilities. This would require approximately 183-275 truck shipments from the Mill per year (based on 40-60 drums per truck, 800 lbs per drum), or one truck every one to two days based on a seven day work week (one truck every day or so, based on a five-day work week). In contrast, the entire volume of yellowcake to be produced from processing the Uranium Material is expected to be transported in a total of less than 8 truckloads. This frequency is minimal in comparison to the estimated yellowcake transport frequency at licensed capacity. Moreover, during the period of transportation of the Uranium

Material to the Mill, Denison does not expect that ore deliveries from all other sources would, in total, exceed a small fraction of the truck transportation associated with licensed capacity.

After leaving Gore, Oklahoma, the shipments will travel west via Interstate Highway 40, followed by US and State Highways to the Four Corners area, to Utah State Highway (SH) 191 south of Blanding and north on SH 191 to the Mill. The shipments will likely enter Utah via SH 262.

(ii) *Comparison to Existing Truck Traffic on Utah State Highway 262*
Based on information from the State of Utah Department of Transportation ("UDOT") traffic analysis reports *Traffic on Utah Highways 2009* and *Truck Traffic on Utah Highways 2009*, accessed at the UDOT web page on October 30, 2010, on average during 2009, 103 multi-unit trucks traveled west daily on SR262 to SR191. Based on the 2009 UDOT truck traffic information, an average of five additional trucks per day traveling this route to the Mill during the limited period anticipated for shipment of the Uranium Material represents an increased traffic load of approximately five percent for that period. Therefore, the truck traffic to the Mill from this project is expected to be an insignificant portion of existing truck traffic on SH 262 and well within the level of truck traffic expected from normal Mill operations.

(iii) *Comparison to Existing Truck Traffic on Utah State Highway 191*
Based on information from the UDOT traffic analysis data, accessed at the UDOT web page on October 30, 2010, on average during 2009, 292 multi-unit trucks traveled daily on SR 191 from the Four Corners area to the Mill area south of Blanding. Based on the 2009 UDOT truck traffic information, an average of 5 additional trucks per day traveling this route to the Mill during the limited period anticipated for shipment of the Uranium Material represents an increased traffic load of less than two percent for that period. As a result, the truck traffic to the Mill from this project is expected to be an insignificant portion of existing truck traffic on SH 191, and well within the level of truck traffic expected from normal Mill operations.

4.2.3 <u>Transportation Accidents</u>

As discussed in Section 2.3 and Attachment 5, the Uranium Material has a uranium content and radioactivity levels comparable to Arizona Strip ores and previously-approved alternate feed materials, and contains no additional constituents beyond those associated with other ores or alternate feeds previously transported to the Mill. Therefore the Uranium Material poses no additional hazards during transport above previously licensed activities. Existing accident response and spill response procedures are therefore sufficient for management of potential transportation accidents or spills of the Uranium Material.

4.3 Storage

4.3.1 <u>Manner of Storage</u>

Trucks arriving at the Mill site will be received according to existing Mill procedures. The SuperSaks will be unloaded from the trucks onto the ore pad for temporary storage until the material is scheduled for processing.

4.3.2 <u>Environmental Impacts Associated With Storage</u>

Because the Uranium Material does not significantly differ in radiological activity from other ores and alternate feed materials, and because the Uranium Material will be stored in SuperSaks on the Mill's ore pad pending processing, there will be no environmental impacts associated with the Uranium Material over and above those associated with other ores and alternate feed materials handled at the Mill on a routine basis. Experience at the Facility has determined that the Uranium Material is stable under ambient environmental conditions and does not require any special handling.

4.4 Process

The Uranium Material will be introduced to the process in the main circuit either alone or in combination with other conventional ores or other alternate feeds. In either case, the material will be processed through existing acid leach, counter-current decantation and solvent extraction circuits for the recovery of uranium values. The leaching process will begin in Pulp Storage with the addition of sulfuric acid. The solution will be advanced through the remainder of the Mill or alternate feed circuit with no significant modifications to either the circuit or the recovery process anticipated. The only wastes or effluents to be generated from processing the Uranium Material are tailings solutions or solids to be transferred to the Mill's existing tailings system.

Since no significant physical changes to the Mill circuit and no new process chemicals will be necessary to process this Uranium Material, no significant construction impacts beyond those previously assessed will be involved. Recovery of additional contained metals is not anticipated at this time.

As with other alternate feed materials, a Standard Operating Procedure ("SOP") specific to processing of the Uranium Material, addressing processing procedures, personnel safety and radiation or other exposure monitoring will be developed and reviewed by the Mill's SERP, and Mill personnel will be trained in the approved SOP prior to processing of the Uranium Material.

The effects of introducing the Uranium Material into the Mill's process and tailings were reviewed by Denison's chemical process engineer. The chemical engineer's Technical Memorandum is included as Attachment 5. Table 5 in this Technical Memorandum provides comparisons of the concentrations of all known constituents of the Uranium Material to the tailings and other previously processed ores and alternate feeds. As discussed in Section 4.5 below, and in Attachment 5, the existing tailings system and tailings management controls are adequate for management of any tailings generated from the Uranium Material.

4.4.1 <u>Mill Accidents and Emergency Response</u>

As discussed in Section 2.3 and Attachment 5, the Uranium Material has a uranium content and radioactivity levels comparable to Arizona Strip ores, and previously-approved alternate feed materials, and contains no additional constituents beyond those associated with other ores or alternate feeds previously transported to the Mill. Therefore the uranium Material poses no additional hazards during storage, processing or disposal of tailings. As discussed in Attachment 5, the Uranium Material will not introduce any new hazardous constituents, and processing will not require the introduction of any new processing chemicals. Existing emergency response and spill response procedures are therefore sufficient for management of potential accidents or spills of the Uranium Material on the Mill site.

4.5 Compatibility with Denison Mill Tailings

4.5.1 Physical Compatibility

The Uranium Material will be received as a dewatered sludge from filter press dewatering of clarifier solids. A portion of this material may be insoluble in the acid leach process at the Mill, and therefore the discharge sent to tailings may contain some solid material ("sand"). The remainder of the Uranium Material will be soluble and will therefore be contained in the liquid phase after processing in the acid leach system. The solids will be sent to one of the Mill's active tailings cells (currently Cell 4A, or Cell 4B). The solutions from the Uranium Material tailings will be recirculated through the mill process for reuse of the acidic properties in the solution. The sands will be only a portion of the total mass of Uranium Material. However, assuming a worst case scenario that all of the solid material ends up as sand in the tailings, it is estimated that for the main processing circuit, the additional load to the tailings is minimal (Attachment 5, Table 5). It is expected that the percent increase to the system is less than one percent for all components.

Cell 4A, which has been in service since October of 2008, has received tailings solids and solutions primarily from conventional ore processing together with a small volume from alternate feed processing. Cell 4B, placed into service in February 2011, will receive similar materials as Cell 4A. Tailings from processing the Uranium Material may be transferred to either Cell 4A or 4B or comparable new cell. Both Cells 4A and 4B have similar primary and secondary high-density polyethylene ("HDPE") flexible membrane liners, geosynthetic clay underliners, and comparable leak detection system designs, selected specifically to meet current standards for uranium mill tailings management.

The constituents in the tailings resulting from processing the Uranium Material are not expected to be significantly different from those in the conventional ores either in composition or in concentration of constituents. The Technical Memorandum on Worker Safety, Environmental Issues and Chemical Compatibility (the "Safety and Compatibility Technical Memorandum", Attachment 5) indicates that all of the constituents found in the Uranium Material have previously been processed in the Mill's circuits and managed in the Mill's tailings system.

The Safety and Compatibility Technical Memorandum identified that the components of the Uranium Material are not expected to have any adverse effect on the Mill processing system or the tailings cells. As described in Attachment 5, it is expected that most of the metal and non-metal impurities entering the leach system with the Uranium Material will be converted to sulfate ions, precipitated, and eventually discharged to the tailings system.

Every metal and non-metal cation and anion component in the Uranium Material already exists or can be assumed to exist in the Mill's tailings system, is already addressed in the Mill's groundwater monitoring program, or both. A summary of the anticipated tailings composition before and after the Uranium Material is processed is presented in the Safety and Compatibility Technical Memorandum Attachment 5.

Every identified component in the Uranium Material has been:

1. detected in analyses of the tailings cells liquids;
2. detected in analyses of tailings cells solids;
3. detected in analyses of alternate feed materials licensed for processing at the Mill; or

4. detected in process streams or intermediate products when previous alternate feeds were processed at the Mill;

at concentrations that are generally comparable to the concentrations in the Uranium Material. However, even if the Uranium Material were to contain some constituents at significantly higher concentrations, due to the limited quantity of Uranium Material, any such increase in the concentration of any analyte in the Mill's tailings would not be expected to be significant. The estimated effect on tailings composition is discussed in the attached technical memorandum.

The constituents in the Uranium Material are expected to produce no incremental additional environmental, health, or safety impacts in the Mill's tailings system beyond those produced by the Mill's processing of natural ores or previously approved alternate feeds.

4.5.2 Capacity and Throughput

The amount of tailings that would potentially be generated from processing the Uranium Material is equivalent to the volume that would be generated from processing an equivalent volume of conventional ore. Processing of the Uranium Material will have no effect on the capacity of the tailings system over the lifetime of the Mill operations beyond that of processing a similar amount of natural ore. The Facility, as described above, may be expected to ship a total of approximately 11,000 to 17,000 tons of Uranium Material to the Mill. This volume is well within the maximum annual throughput rate and tailings generation rate for the Mill of 680,000 tons per year. Additionally, the design of the existing impoundments has previously been approved by the NRC (Cell 3) and by the Utah DRC (Cells 4A and 4B), and Denison is required to conduct regular monitoring of the impoundment leak detection systems and of the groundwater in the vicinity of the impoundments to detect any potential leakage should it occur.

4.5.3 Mill Tailings Closure and Reclamation

Processing of the Uranium Material will have no effects beyond those identified in the approved ERs, ESs, Reclamation Plans from tailings operational management and closure. The Uranium Material will have no effect on existing approved plans for decommissioning of the Mill, buildings, land or structures, or reclamation of the site. The Uranium Material will have no effect on tailings design components addressing permanent isolation of tailings, slope stability, settlement or liquefaction of reclaimed tailings, or design features addressing disposal cell covers or erosion protection.

Because radionuclide content is within the ranges associated with other ores and alternate feeds approved for processing at the Mill, there will be no effect on radon attenuation, gamma attenuation or cover radionuclide content. Because it will not affect cover design at closure and reclamation, there will be no effect on the final radon barrier design or its method of emplacement, radium concentration in cover materials, or other cover radionuclide content. Processing of the Uranium Material will have no effect on completion of the final radon barrier or on the timetable for completion of reclamation. Processing of the Uranium Material will not require the acceptance of uranium byproduct material from other sources during closure.

Because processing the Uranium Material will have no effect on reclamation and closure design, construction or timing, it will have no effect on existing and approved financial surety estimates or arrangements, and will not require any changes to costs of long-term surveillance.

4.6 Groundwater

In the 1997 EA, NRC staff concluded that, for a number of reasons, groundwater beneath or in the vicinity of the Mill site will not be adversely impacted by continued operation of the Mill. Because the Mill's tailings cells are not impacting groundwater, the receipt and processing of Uranium Material at the Mill will not have any incremental impacts on groundwater over and above existing licensed operations.

Denison meets the State of Utah Groundwater Protection Standards by complying with the Mill's current Groundwater Discharge Permit ("GWDP"). The Mill initially applied for a GWDP in 2005. The current version was approved in July 2011. The primary groundwater protection standard in UAC R313-24-4 is a design standard for surface impoundments used to manage uranium and thorium byproduct material. The designs of the Mill's tailings Cells 4A and 4B, which will receive tailings from processing the Uranium Material, have been approved by DRC as meeting Best Available Technology Requirements for the liners and other components of the containment system.

The GWDP established points of groundwater monitoring compliance, a compliance monitoring program, and agreed to the establishment of intra-well background for comparison with groundwater compliance limits. The GWDP further established requirements for submission of field and laboratory monitoring data, reporting of mechanical problems or discharge system failures, correction of adverse effects, assessment of corrective actions, and notification, reporting and procedures during any out-of-compliance status. Since the issuance of the initial GWDP, the Mill has not sought to discontinue the GWDP.

All constituents identified in the Uranium Material, are already present or can be assumed to be present in the Mill's tailings system, are already included in the Mill's groundwater monitoring program, or both.

Chemical and radiological make-up of the Uranium Material is similar to other ores and alternate feed materials processed at the Mill, and their resulting tailings will have the chemical composition of typical uranium process tailings, for which the Mill's tailings system was designed. As a result, the existing groundwater monitoring program at the Mill will be adequate to detect any potential future impacts to groundwater.

As a result, there will be no incremental impacts over and above previously licensed activities.

4.7 Surface Water

There will be no discharge of Mill effluents to local surface waters. All Mill process effluents, and analytical laboratory liquid wastes will be discharged to the Mill's tailings impoundments for disposal by evaporation. Runoff from the Mill and facilities is directed to the tailings impoundments. Sanitary wastes are discharged to State-approved leach fields. Since there is no plausible pathway for Uranium Material to impact surface water, and, as indicated in Semi-Annual Effluent Reports filed by the Mill to date, there is no indication of the Mill impacting surface waters, then there will be no incremental impact to surface waters from any airborne particulates associated with processing the Uranium Material.

The Uranium Material will be transported to the Mill in closed SuperSaks in exclusive use trucks. Upon introduction into the Mill circuit, the Uranium Material will be processed in a similar fashion as other ores and alternate feed materials. The Uranium Material will be relatively moist, with an average moisture content of approximately 55%. This will minimize any potential for dusting while the Uranium Material is introduced into the Mill process. In addition, standard procedures at the Mill for dust suppression will be employed if necessary. There will therefore be no new or incremental risk of discharge to surface waters resulting from the receipt and processing of Uranium Material at the Mill or the disposition of the resulting tailings.

Finally, as the chemical and radiological make-up of the Uranium Material are sufficiently similar to natural ores and the tailings resulting therefrom, that the existing surface water monitoring program at the Mill will be adequate to detect any potential impacts to surface water. As a result, there will be no incremental impacts over and above previously licensed activities.

4.8 Airborne Radiological Impacts

The chemical and radiological make-up of the Uranium Material will not be significantly different from natural ores and other alternate feeds that that have been licensed for processing at the Mill in the past. The existing air particulate monitoring program is equipped to handle all such ores and alternate feeds.

4.9 Radon and Gamma Impacts

As discussed in Section 2.5.2 above, the uranium content and radioactivity levels of the Uranium Material is comparable to Arizona Strip breccia pipe ores and previously approved alternate feed materials. In fact, the Ra-226 concentrations are in disequilibrium and much lower than even low grade Colorado Plateau ores. Therefore, radon-220 emanations from the Uranium Material will be significantly lower than from the same quantity of low grade ores. Also, the gamma fields from the U-nat chain are derived primarily from Rn-226, which is very low. Therefore, the gamma from the U-nat chain in the Uranium Material will be low. The lower gamma from the U-nat chain will be offset somewhat from the Th-238 chain radionuclides. However, this gamma is derived primarily from the Th-228 in the Uranium Material, which is in disequilibrium and is low relative to its parent Th-232. Overall, the Uranium Material will therefore pose a comparable or lower gamma and radon hazard as other ores and alternate feed materials that have already been processed or licensed for processing at the Mill.

4.10 Safety Measures

4.10.1 General

During unloading of the Uranium Material SuperSaks onto the ore pad, while the Uranium Material is being stored on the ore pad pending processing, while feeding Uranium Material into the Mill process and while processing the Uranium Material and disposing of and managing the resulting tailings, the Mill will follow existing Mill SOPs in addition to an SOP to be developed specific to the Uranium Material, as discussed below.

4.10.2 Radiation Safety

a) Existing Radiation Protection Program at the Mill

The radiation safety program which exists at the Mill, pursuant to the conditions and provisions of the Mill's Radioactive Materials License, and applicable State Regulations, is adequate to ensure the protection of the worker and environment, and is consistent with the principle of maintaining exposures of radiation to individual workers and to the general public to levels As Low As Reasonably Achievable ("ALARA"). Employees will be provided with personal protective equipment including full-face respirators, if required. In addition, all workers at the Mill are required to wear personal Optically Stimulated Luminescence ("OSL") badges or the equivalent to detect their exposure to gamma radiation.

b) Gamma Radiation
Gamma radiation levels associated with the Uranium Material are within levels of gamma radiation associated with other ores and alternate feed materials processed or licensed for processing at the Mill in the past. Gamma exposure to workers will be managed in accordance with existing Mill standard operating procedures.

c) Radon
Radon levels associated with the Uranium Material are within levels of radon associated with other ores and alternate feed materials processed or licensed for processing at the Mill in the past. Radon exposures to workers will be managed in accordance with existing Mill standard operating procedures.

d) Control of Airborne Contamination
The Uranium Material is a fine-grained solid currently with an average moisture content of approximately 55%. While stored on the ore pad, the uranium material will remain within the SuperSaks used for transport. The Uranium Material will be stored in an area on the ore pad separate from regular traffic and marked as Uranium Material.

Dust suppression techniques will be implemented, if required, while the Uranium Material is on the ore pad and while it is being introduced into the Mill process, although this may be unnecessary due to the relatively high moisture content of the Uranium Material. Once in the Mill process, the Uranium Material will be in a dissolved form, and no special dust suppression procedures will be required. As is the practice at the Mill for other alternate feed materials, the Derived Air Concentration ("DAC") to be used in any analysis of airborne particulate exposure to workers will be developed specifically for the Uranium Material, based on applicable regulations and Mill procedures, in order to take into account the specific radionuclide make-up of the Uranium Material. The Mill has safely received and processed alternate feed materials with comparable concentrations of the radionuclides contained in the Uranium Material, under previous license amendments, and can safely handle the Uranium Material in accordance with existing Mill standard operating procedures.

4.10.3 Occupational Safety

The primary focus of safety and environmental control measures will be to manage potential exposures from radionuclide particulates. Response actions and control measures designed to manage particulate radionuclide hazards will be more than sufficient to manage chemical hazards from the metal oxides (see the conclusions of the Safety and Compatibility Technical Memorandum in Attachment 5).

4.10.4 Vehicle Scan

As stated in Section 4.2.1 above, the shipments of Uranium Material to and from the Mill will be dedicated, exclusive loads. Radiation surveys and radiation levels consistent with applicable DOT regulations will be applied to the exclusive use vehicles. For unrestricted use, radiation levels will be in accordance with applicable values contained in the NRC Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material, U.S. NRC, May,

1987. If radiation levels indicate values in excess of the above limits, appropriate decontamination procedures will be implemented.

4.11 Long Term Impacts

The Uranium Material is comprised of similar chemical and radiological components as already exist in the Mill's tailings cells. Existing monitoring programs are therefore adequate and no new monitoring procedures are required. As a result, there will be no decommissioning, decontamination or reclamation impacts associated with processing the Uranium Material, over and above previously licensed Mill operations.

4.12 Other Operational Considerations

Processing of the Uranium Material will not require changes to corporate organization or administrative procedures, management control programs, management audit and inspection programs, staffing levels or staff qualifications. Processing will not require modifications to the Mill's existing security procedures.

4.13 Added Advantage of Recycling

SFC has expressed its preference for use of recycling and mineral recovery technologies for the Uranium Material for three reasons: 1) for the environmental benefit of reclaiming valuable minerals; 2) for the added benefit of reducing radioactive material disposal costs; and 3) for the added benefit of minimizing or eliminating any long term contingent liability for the waste materials generated during processing.

SFC has noted that the Mill has the technology necessary to process materials for the extraction of uranium and to provide for disposal of the 11e.(2) byproduct material, resulting from processing primarily for the uranium, in the Mill's existing tailings impoundments. As a result, SFC will contractually require Denison to recycle the Uranium Material at the Mill for the recovery of uranium.

4.14 Consideration of Alternatives

This application is in response to a request by SFC for disposal/processing options in connection with the clean-up of the Facility. The Mill is a facility that has been requested to provide these services, because it is licensed to process materials for the recovery of uranium and is licensed to create, possess and dispose of byproduct materials that are similar to the Uranium Materials. Given that a decision to dispose of the Uranium Material at an offsite facility is required, the only options are as to which offsite facility the Uranium Materials will ultimately be sent for disposal. There are a limited number of facilities that are licensed to receive, store, process or dispose of the Uranium Material. Alternatives to processing/disposal at the Mill would be direct disposal or processing at one of these other facilities. If direct disposal is utilized, the value of the recoverable uranium in the Uranium Material would not be realized.

5.0 CERTIFICATION

This application and Environmental Report has been submitted as of December 2011 by

DENISON MINES (USA) CORP.

By:

ATTACHMENT 1

Sequoyah Fuels Corporation (SFC) Gore Facility Location

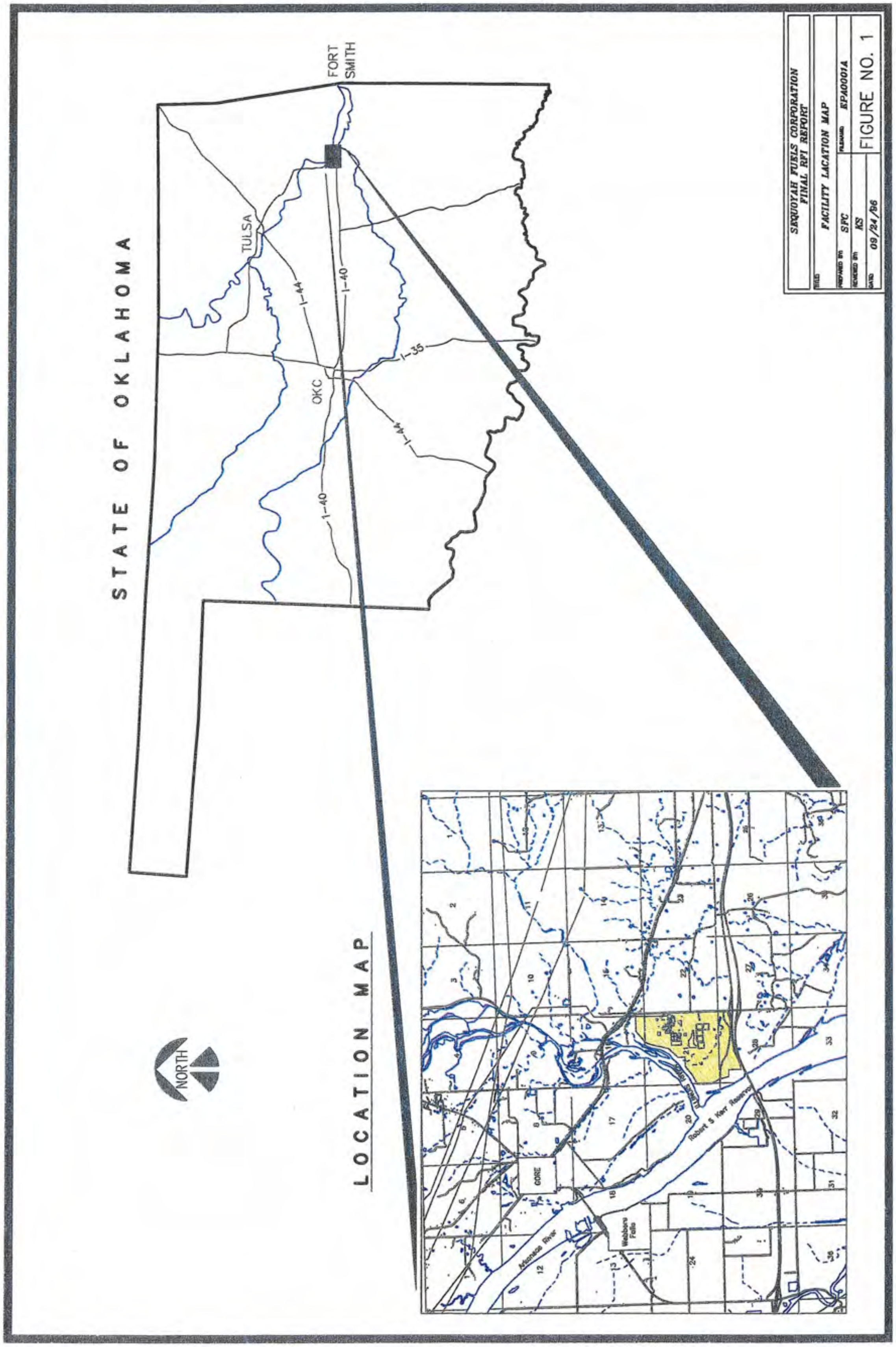

Figure 1: Facility Location Map

ATTACHMENT 2

Radioactive Material Profile Record and Affidavit

RADIOACTIVE MATERIAL PROFILE RECORD

Generator Name:, Sequoyah Fuels Corporation , Generator/Feed Stream #: none ; Volume of Feed Material: 11000 cy (21000 ton)

Contractor Name: none , Feed Stream Name: none , Delivery Date: to be determined

Check appropriate boxes: Licensed Y X N ___ NORM/NARM ___; LLRW ___; MW ___; MW Treated ___; MW Needing Trtmt ___; DOE ___; 11e.(2) X ;

Original Submission: Y X N ___; Revision #: n/a Date of Revision: n/a

Name and Title of Person Completing Form: John Ellis, President , Phone: 918 489 5511, x226

A. CUSTOMER INFORMATION:

GENERAL: Please read carefully and complete this form for one feed stream. This information will be used to determine how to properly manage the material. Should there be any questions while completing this form, contact Denison Mines (USA) Corp. ("Denison") Environmental Management at 303.628.7798. MATERIALS CANNOT BE ACCEPTED AT DENISON'S WHITE MESA MILL UNLESS THIS FORM IS COMPLETED. If a category does not apply, please indicate. This form must be updated annually.

1. GENERATOR INFORMATION

EPA ID#: 110001224719 , EPA Hazardous Waste Number(s) (if applicable): n/a

Mailing Address: Sequoyah Fuels Corporation, P.O. Box 610, Gore, OK 74435

Phone: 918 489 5511 , Fax: 918 489 2291

Location of Material (City, ST): Gore, OK

Generator Contact: John Ellis Title: President

Mailing Address (if different from above): same

Phone: same , Fax: same

B. MATERIAL PHYSICAL PROPERTIES (Should you have any questions while completing this section, contact Denison Environmental Management at 303.628.7798.

1. PHYSICAL DATA (Indicate percentage of material that will pass through the following grid sizes, e,g, 12" 100%, 4" 96%, 1" 74%, 1/4" 50%, 1/40" 30%, 1/200" .5%)

GRADATION OF MATERIAL:

12"	100%
4"	100%
1"	100%
1/4"	100%
1/40"	100%
1/200"	97%

2. DESCRIPTION: Color rust Brown/Multi___ Odor mild Odorless___

Liquid___ Solid X Sludge___ Powder/Dust___

3. DENSITY RANGE: (Indicate dimensions) 1.34 - 1.37 [S.G.] lb./ft^3 lb./yd^3

4. GENERAL CHARACTERISTICS (% OF EACH)

Soil zero Building Debris zero Rubble zero Pipe Scale zero Tailings 95 Process Residue 5 Concrete zero Plastic/Resin zero

Other constituents and approximate % contribution of each: not applicable

5. MOISTURE CONTENT: (For soil or soil-like materials).

(Use Std Proctor Method ASTM D-698)

Optimum Moisture Content: n/a %

Average Moisture Content: 54.9 % (u and moisture on 500th samples.xls)

Moisture Content Range: 22 – 77 %

6. DESCRIPTION OF MATERIAL (Please attach a description of the material with respect to its physical composition and characteristics. This description can be attached separately or included with the attachment for Item D.1.) See Attachment D1.

Generator or Contractor Initials: [initials]

Radioactive Material Profile Record: Sequoyah Fuels Corporation; dewatered raffinate sludge

C. RADIOLOGICAL EVALUATION

1. MATERIAL INFORMATION. For each radioactive isotope associated with the material, please list the following information. Denison's license assumes daughter products to be present in equilibrium, these are not required to be listed below and do not require manifesting. (Use additional copies of this form if necessary).

See Attachment D1civ

	Isotopes	Concentration Range (pCi/g)	Weighted Average (pCi/g)		Isotopes	Concentration Range (pCi/g)	Weighted Average (pCi/g)
a.	U-natural	4793 to 7041	5777	b.	Th-230	43900 to 74400	55685
c.	Ra-226	135 to 367	236	d.	Th-232	1060 to 4990	2385
e.	Th-228	449 to 1110	699	f.	____	____ to ____	____

ND – Analyte not detected.

2. Y [N] Is the radioactivity contained in the feed material Low-Level Radioactive Waste as defined in the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 5820.2A. Chapter III? (Please Circle) If yes, check "LLRW" block on line 3 of page 1.
3. [Y] N LICENSED MATERIAL: Is the feed material listed or included on an active Nuclear Regulatory Commission or Agreement State license? (Please Circle)

(If Yes) TYPE OF LICENSE: Source _X_; Special Nuclear Material ____; By-Product ____; Norm ____; NARM ____;

LICENSING AGENCY: U.S. Nuclear Regulatory Commission, License SUB-1010, Docket 40-8027

D. CHEMICAL AND HAZARDOUS CHARACTERISTICS

1. DESCRIPTION AND HISTORY OF MATERIAL

Please attach a description of the material to this profile. Include the following as applicable: The process by which the material was generated. Available process knowledge of the material. The basis of hazardous material or waste determinations. A list of the chemicals and materials used in or commingled with the material; a list of any and all applicable EPA Hazardous Waste Numbers, current or former; and a list of any and all applicable land-disposal prohibition or hazardous-waste exclusions, extensions, exemptions, effective dates, variances or delistings. Attach the most recent or applicable analytical results of the material's hazardous-waste characteristics or constituents. Attach any applicable analytical results involving the composition of the material. Attach any product information or Material Safety Data Sheets associated with the material. If a category on this Material Profile Record does not apply, describe why it does not.

See Attachment D1, tables 1 and 2

Please describe the history, and include the following:

[Y] N Was this material mixed, treated, neutralized, solidified, commingled, dried, or otherwise processed at any time after generation? → Dewatered with filter press

Y [N] Has this material been transported or otherwise removed from the location or site where it was originally generated?

Y [N] Was this material derived from (or is the material a residue of) the treatment, storage, and/or disposal of hazardous waste defined by 40 CFR 261?

Y [N] Has this material been treated at any time to meet any applicable treatment standards?

2. LIST ALL KNOWN AND POSSIBLE CHEMICAL COMPONENTS OR HAZARDOUS WASTE CHARACTERISTICS

		(Y)	(N)			(Y)	(N)			(Y)	(N)
a.	Listed HW		N	b.	"Derived-From" HW		N	c.	Toxic		N
d.	Cyanides		N	e.	Sulfides		N	f.	Dioxins		N
g.	Pesticides		N	h.	Herbicides		N	i.	PCBs		N
j.	Explosives		N	k.	Pyrophorics		N	l.	Solvents		N
m.	Organics		N	n.	Phenolics		N	o.	Infectious		N
p.	Ignitable		N	q.	Corrosive		N	r.	Reactive		N
s.	Antimony	Y		t.	Beryllium	Y		u.	Copper	Y	
v.	Nickel	Y		w.	Thallium	Y		x.	Vanadium		N
y.	Alcohols		N	z.	Arsenic	Y		aa.	Barium	Y	
bb.	Cadmium		N	cc.	Chromium	Y		dd.	Lead	Y	
ee.	Mercury	Y		ff.	Selenium	Y		gg.	Silver		N
hh.	Benzene		N	ii.	Nitrate	Y		jj.	Nitrite		N
kk.	Fluoride	Y		ll.	Oil		N	mm.	Fuel		N
nn.	Chelating Agents		N	oo.	Residue from water treatment		N				

pp. Other Known or Possible Materials or Chemicals: None.

Generator or Contractor Initials: [initials]

3. ANALYTICAL RESULTS FOR TOXICITY CHARACTERISTICS.
(Please transcribe results on the blank spaces provided. Attach additional sheets if needed, indicate range or worst-case results).

See Attachment D1, tables 1 and 2

Metals (circle one): Total (mg/kg) or TCLP (mg/l)   Organics (circle one):Total (mg/kg) or TCLP (mg/l)

Lead	______	______	______
Barium	______	______	______
Mercury	______	______	______
Cadmium	______	______	______
Zinc	______	______	______
Chromium	______	______	______
Copper	______	______	______

ND – Analyte not detected

4. ANALYTICAL RESULTS FOR REQUIRED PARAMETERS:
(Please transcribe results on the blank spaces provided. Attached additional sheets if needed).

Soil pH ~ 6   Paint Filter No Free Liquid Liquids Test (Pass/Fail) Pass   Cyanide Released n/a   Not detected ____ mg/kg   Sulfide Released n/a   Not detected ____ mg/kg

5. IGNITABILITY (40 CFR 261.21[a][2].[4].)

Flash Point not applicable °F °C   Is the material a RCRA oxidizer? Y [N]

5. CHEMICAL COMPOSITION
(List all known chemical components and circle the applicable concentration dimensions. Use attachments to complete, if necessary.)

See Attachment D1, tables 1 and 2

Chemical Component	Concentration	Chemical Component	Concentration
______	______ % mg/kg	______	______ % mg/kg
______	______ % mg/kg	______	______ % mg/kg
______	______ % mg/kg	______	______ % mg/kg

Halogenated Organic Compounds (HOC) (Sum of the list of HOCs) mg/kg

E. REQUIRED CHEMICAL LABORATORY ANALYSIS. Generator must submit results of analyses of samples of the material. Results are required from a qualified laboratory for the following analytical parameters unless nonapplicability of the analysis for the material can be stated and justified in attached statements. Attach all analytical results and QA/QC documentation available. (CAUTION: PRIOR TO ARRANGING FOR LABORATORY ANALYSIS, CHECK WITH DENISON AND LABORATORY REGARDING UTAH LABORATORY CERTIFICATIONS.)

FOR ALL MATERIAL TYPES: CHEMICAL ANALYSIS: Soil pH (9045), Paint Filter Liquids Test (9095), Reactivity (cyanide and sulfide).

1. MINIMUM ADDITIONAL ANALYTICAL REQUIRED FOR:

   a. Non-RCRA Waste (Non Mixed Waste e.g., LLRW, NORM): TCLP including the 32 organics, 8 metals, and copper (Cu) and zinc (Zn).

2. REQUIRED RADIOLOGICAL ANALYSES. Please obtain sufficient samples to adequately determine a range and weighted average of activity in the material. Have a sufficient number of samples analyzed by gamma spectral analysis for all natural isotopes such that they support the range and weighted average information for the material that will be recorded in item D.1. If Uranium, Thorium, or other non-gamma emitting nuclides are present in the material, have at least (1) sample evaluated by radiochemistry to determine the concentration of these additional contaminants in the material.

See Attachment D1civ.

Generator or Contractor Initials: [signature]

3. PRE-SHIPMENT SAMPLES OF MATERIAL TO DENISON

Once permission has been obtained from Denison, and unless amenability samples have previously been sent to Denison, please send 5 representative samples of the material to Denison. A completed chain of custody form must be included with the sampling containers. These samples will be used to establish the material's incoming shipment acceptance parameter tolerances and may be analyzed for additional parameters. Send about two pounds (one liter) for each sample in an air-tight clean glass container via United Parcel Post (UPS) or Federal Express to:

Denison Mines (USA) Corp., Attn: Sample Control, 6425 S. Highway 191, P.O. Box 809, Blanding, UT 84511
Phone: (435) 678-2221

4. LABORATORY CERTIFICATION INFORMATION. Please indicate below which of the following categories applies to your laboratory data.

a. All radiologic data used to support the data in item C.1. must be from a certified laboratory.

____UTAH CERTIFIED. The laboratory holds a current certification for the applicable chemical or radiological parameters from the Utah Department of Health insofar as such official certifications are given.

_X_ GENERATOR'S STATE CERTIFICATION. The laboratory holds a current certification for the applicable chemical parameters from the generator's State insofar as such official certifications are given, or

See Attachment E4a

- New Jersey Department of Environmental Protection, National Environmental Laboratory Accreditation Program, Annual Certified Parameter List and Current Status, Outreach Laboratory, and
- Oklahoma Department of Environmental Quality, Laboratory Accreditation Program, Outreach Laboratory.

____GENERATOR'S STATE LABORATORY REQUIREMENTS. The laboratory meets the requirements of the generator's State or cognizant agency for chemical laboratories, or:

b. For analytical work done by Utah-certified laboratories, please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for analyses required by this form.

c. For analytical work done by laboratories which are not Utah-Certified, please provide the following information:

David Caldwell	OK	405-702-1024
State or Other Agency Contact Person	Generator's State	Telephone Number
Donna Eidson	OK	918-251-2515
Lab Contact Person	Laboratory's State	Telephone Number

F. CERTIFICATION

GENERATOR'S CERTIFICATION: I also certify that where necessary those representative samples were or shall be provided to Denison and to qualified laboratories for the analytical results reported herein. I also certify that the information provided on this form is complete, true and correct and is accurately supported and documented by any laboratory testing as required by Denison. I certify that the results of any said testing have been submitted to Denison. I certify that the material described in this profile has been fully characterized and that hazardous constituents listed in 10 CFR 40 Appendix A Criterion 13 which are applicable to this material have been indicated on this form. I further certify and warrant to Denison that the material represented on this form is not a hazardous waste as defined by 40 CFR 261 and/or that this material is exempt from RCRA regulation under 40 CFR 261.4(a)(4).

The Generator's responsibilities with respect to the material described in this form are for policy, programmatic, funding and scheduling decisions, as well as general oversight. The Contractor's responsibilities with respect to this material are for the day-to-day operations (in accordance with general directions given by the Generator as part of its general oversight responsibility), including but not limited to the following responsibilities: material characterization, analysis and handling; sampling; monitoring; record keeping; reporting and contingency planning. Accordingly, the Contractor has the requisite knowledge and authority to sign this certification on behalf of itself, and as agent for the Generator, on behalf of the Generator. By signing this certification, the Contractor is signing on its own behalf and on behalf of the Generator.

Generator's or Contractor's Signature John H Ellis Title President Date 2/22/10
(Sign for the above certifications).
Print Name of Individual Signing above: John H. Ellis

RADIOACTIVE MATERIAL PROFILE RECORD

Sequoyah Fuels Corporation

dewatered raffinate sludge

February 2010

Radioactive Material Profile Record: Sequoyah Fuels Corporation; dewatered raffinate sludge

D. CHEMICAL AND HAZARDOUS CHARACTERISTICS

1. DESCRIPTION AND HISTORY OF MATERIAL

a. The process by which the material was generated.

Sequoyah Fuels Corporation chemically converted uranium ore concentrates to uranium hexafluoride. This process included two primary purification steps: digestion followed by solvent extraction. Digestion occurred by dissolving the uranium in nitric acid. The resulting slurry was subjected to solvent extraction using tributyl phosphate diluted with n-hexane. Process conditions were controlled to extract uranium into the organic phase. The milling impurities remain in the aqueous phase, a dilute nitric acid mixture termed raffinate.

The aqueous raffinate stream is primarily a solution of nitric acid, metallic salts, and trace quantities of uranium and radioactive transformation products of natural uranium, primarily Th-230 and Ra-226. The aqueous raffinate stream was combined with spent sodium hydroxide from nitrous oxide scrubber systems and waste sodium carbonate solutions. The untreated raffinate stream from solvent extraction was pumped to an impoundment and allowed to cool. Anhydrous ammonia was added to the raffinate solution to convert the dilute nitric acid to ammonium nitrate. The addition of the anhydrous ammonia also increased the pH of the raffinate solution causing the metallic salts and trace quantities of uranium, thorium, and radium to precipitate and settle out in the impoundments as raffinate sludge. The treated raffinate solution was decanted to another impoundment for further treatment with barium chloride to remove trace levels of radium through co-precipitation. This precipitate was periodically combined with the raffinate sludge in the other impoundments.

The raffinate sludge was transferred by slurry to other storage ponds as necessary. The final treated raffinate solution was stored in surface impoundments prior to use as an ammonium nitrate fertilizer.

b. Available process knowledge of the material.

The raffinate sludge was accumulated and stored in several impoundments on site, including Clarifier A basins and Pond 4. No other materials were combined with the stored sludge. The raffinate sludge was eventually consolidated to Clarifier A basins to support decommissioning Pond 4 and dewatering of the raffinate sludge.

The raffinate sludge was slurried from Clarifier A basins and processed through a 225 psi filter press to remove entrained water. The dewatered sludge was placed in one cubic yard polypropylene bags. The bags are stored on site.

D. CHEMICAL AND HAZARDOUS CHARACTERISTICS

1. DESCRIPTION AND HISTORY OF MATERIAL

c. The basis of hazardous material or waste determinations.

Physical and chemical properties of the raffinate sludge have been determined at different times to support site characterization activities and treatability studies. The results of those determinations are described in the RCRA Facility Investigation Report (RFI) and the Site Characterization Report (SCR): information from these reports is summarized below. Assessment of the data provided in the RFI or the SCR is included in the respective report. Information regarding physical and chemical properties of the raffinate sludge developed in support of evaluating dewatering the sludge is also summarized here.

Four samples were collected in March 1994 from Pond 4 for the purpose of determining concentrations of metals and radionuclides in the raffinate sludge; the averages of analytical results of these samples are presented in Table 1 as *Raw Sludge*. A composite sample was developed from these samples for the purpose of collecting a leachate; the analytical results of the leachate are presented in Table 1 as *Raw Sludge Leachate*.

The raffinate sludge in Pond 4 was transferred to Clarifier A basins between 1993 and 1995. A single sample of raffinate sludge was collected from basin 1 of Clarifier A in January 1995 to determine the concentration of volatile and semivolatile organic compounds; the basis for the selection of constituents is provided as Attachment D1ci. The analytical results of this sample are that are greater than respective method detection limit are presented in Table 2. The results presented in Table 2 are for sludge that had not been subjected to dewatering. The laboratory report of results for each constituent for this sample is provided as Attachment D1cii.

Raffinate sludge was collected in May 2003 from basin 1 of Clarifier A for the purpose of testing feasibility of dewatering the raffinate sludge using a pressurized plate filter press. After dewatering by the filter press, three samples were developed and analyzed for metals and radionuclides. The three samples included the dewatered sludge, the water expelled from the sludge as a result of dewatering (filtrate), and a leachate derived from the dewatered sludge. The analytical results of these samples are presented in Table 1 as *Dewatered Sludge*, *Dewatering Filtrate*, and *Dewatered Sludge Leachate*, respectively. The laboratory reports for these samples are provided as Attachment D1ciii.

Physical characteristics of the raffinate sludge are provided in tables 3 and 4. These results represent the raffinate sludge before and after dewatering by pressurized plate filter press, respectively. The dewatered sludge passes the paint filter test for free liquids (EPA Method 9095A).

D. CHEMICAL AND HAZARDOUS CHARACTERISTICS

1. DESCRIPTION AND HISTORY OF MATERIAL

d. A list of the chemicals and materials used in or commingled with the material; a list of any and all applicable EPA Hazardous Waste Numbers, current or former; and a list of any and all applicable land-disposal prohibition or hazardous-waste exclusions, extensions, exemptions, effective dates, variances or delistings.

Chemicals or materials used in or comingled with the raffinate sludge.

- nitric acid
- tributyl phosphate
- n-hexane
- anhydrous ammonia
- barium chloride
- spent sodium hydroxide
- waste carbonate solutions
- recovered weak acids

Any and all applicable EPA Hazardous Waste Numbers

- none

Any and all applicable land-disposal prohibition or hazardous-waste exclusions, extensions, exemptions, effective dates, variances or delistings

- none

e. Attach the most recent or applicable analytical results of the material's hazardous-waste characteristics or constituents.

See attachments D1cii and D1ciii for applicable laboratory reports.

f. Attach any applicable analytical results involving the composition of the material.

None

g. Attach any product information or Material Safety Data Sheets associated with the material.

None

Radioactive Material Profile Record: Sequoyah Fuels Corporation; dewatered raffinate sludge

D. CHEMICAL AND HAZARDOUS CHARACTERISTICS

1. DESCRIPTION AND HISTORY OF MATERIAL

Parameter[a]	Raw Sludge[b]	Raw Sludge Leachate[c]	Dewatered Sludge[d]	Dewatering Filtrate[e]	Dewatered Sludge Leachate[f]	TCLP Regulatory Level[g]
Ag	476 μg/g	0.011 mg/l	<90.8 mg/kg	<0.007 mg/l	<0.320 mg/l	5.0 mg/l
Al	3 μg/g	461 mg/l	160000 mg/kg	10.3 mg/l	28.8 mg/l	---
As	65650 μg/g	0.177 mg/l	3030 mg/kg	0.686 mg/l	0.461 mg/l	5.0 mg/l
Ba	26000 μg/g	0.129 mg/l	4150 mg/kg	0.671 mg/l	<0.100 mg/l	100 mg/l
Be	2 μg/g	0.018 mg/l	18.7 mg/kg	<0.002 mg/l	<0.100 mg/l	---
Ca	30000 μg/g	5.48 mg/l	114000 mg/kg	1260 mg/l	925 mg/l	---
Cd	11 μg/g	0.042 mg/l	<267 mg/kg	0.141 mg/l	<0.100 mg/l	1.0 mg/l
Co	28 μg/g	0.541 mg/l	133 mg/kg	0.464 mg/l	0.711 mg/l	---
Cr	217 μg/g	0.129 mg/l	605 mg/kg	<0.010 mg/l	<0.240 mg/l	5.0 mg/l
Cu	561 μg/g	11.2 mg/l	2360 mg/kg	0.326 mg/l	0.745 mg/l	---
Fe	50700 μg/g	0.149 mg/l	164000 mg/kg	3.57 mg/l	<0.140 mg/l	---
Hg	No analysis	No analysis	1.41 mg/kg	<0.0004 mg/l	<0.0002 mg/l	0.2 mg/l
K	2785 μg/g	9.98 mg/l	7740 mg/kg	3740 mg/l	203 mg/l	---
Li	31 μg/g	1.06 mg/l	<2.67 mg/kg	0.820 mg/l	0.464 mg/l	---
Mg	3015 μg/g	55.9 mg/l	7190 mg/kg	265 mg/l	152 mg/l	---
Mn	621 μg/g	23.9 mg/l	1930 mg/kg	50.6 mg/l	66.2 mg/l	---
Mo	5145 μg/g	2.44 mg/l	10700 mg/kg	42.0 mg/l	13.3 mg/l	---
Na	8565 μg/g	523 mg/l	7480 mg/kg	1260 mg/l	346 mg/l	---
Ni	473 μg/g	10.3 mg/l	1660 mg/kg	2.69 mg/l	8.86 mg/l	---
P	553 μg/g	11.5 mg/l	19600 mg/kg	0.20 mg/l	<0.54 mg/l	---
Pb	411 μg/g	0.449 mg/l	1010 mg/kg	<0.008 mg/l	<1.36 mg/l	5.0 mg/l
Sb	36 μg/g	<0.06 mg/l	78.4 mg/kg	<0.008 mg/l	<0.220 mg/l	---
Se	<16 μg/g	0.214 mg/l	348 mg/kg	0.182 mg/l	<0.200 mg/l	1.0 mg/l
Sr	644 μg/g	4.83 mg/l	1210 mg/kg	2.63 mg/l	2.81 mg/l	---
Tl	32 μg/g	0.258 mg/l	5860 mg/kg	0.030 mg/l	0.418 mg/l	---
V	3305 μg/g	0.374 mg/l	<1.60 mg/kg	1.00 mg/l	0.320 mg/l	---
Zn	297 μg/g	6.94 mg/l	<751 mg/kg	4.5 mg/l	2.92 mg/l	---
F	23118 μg/g	No analysis	No analysis	No analysis	No analysis	---
$NO_3(N)$	42400 μg/g	No analysis	No analysis	3060 mg/l	No analysis	---
$NH_3(N)$	No analysis	No analysis	No analysis	2880 mg/l	No analysis	---
U-total	7050 μg/g	No analysis	19400 μg/g	774 μg/l	4.67 μg/l	---
Th-230	No result	No analysis	16200 pCi/g	1520 pCi/l	80.1 pCi/l	---
Ra-226	189 pCi/g	No analysis	219 pCi/g	50.0 pCi/l	7.06 pCi/l	---

[a] Metals by EPA Method 6010

[b] Sample ID SD001-SD004, March 1994; results are average of SD001- SD004 [Chain-of-Custody (CoC) E-0278-94]

[c] Sample ID SD005, March 1994; 40 CFR 261 Appendix II "Method 1311 Toxicity Characteristic Leaching Procedure" [CoC E-0278-94]

[d] Sample ID MISC raff-filter press only, May 2003 [CoC SF03-278]

[e] Sample ID MISC (Raffinate Filtrate), May 2003 [CoC SF03-129]

[f] Sample ID MISC raff-filter press only leachate, May 2003; 30 Texas Administrative Code Chapter 335 Subchapter R Appendix 4 "7-day Distilled Water Leachate Test Procedure" [CoC SF03-278]

[g] 40 CFR 261.24, Table 1 – Maximum Concentration of Contaminants for the Toxicity Characteristic.

D. CHEMICAL AND HAZARDOUS CHARACTERISTICS

1. DESCRIPTION AND HISTORY OF MATERIAL

Table 2 Summary of Organic and Mercury analyses of raffinate sludge[a].

Parameter	Value	Comment
Mercury (total) [b]	0.34 mg/kg	Practical quantitation limit 0.01 mg/kg.
Volatile [c]	2-Butanone, 0.3 mg/kg 2-Hexanone, 0.08 mg/kg	Practical quantitation limit 0.1 mg/kg. Practical quantitation limit 0.05 mg/kg.
Semivolatile [d]	None.	Not applicable.

[a] Sample ID SD014, January 1995 [Chain-of-Custody E-0131-95]
[b] EPA Method SW7471
[c] EPA Method SW8240.
[d] EPA Method SW8270.

Table 3 Physical characteristics of raffinate sludge

Parameter	Value	Comment
Density	1.17 g/cm^3	One measurement made on site May 2003.
% solids	18%	A calculated value from data collected May 2003.

Table 4 Physical characteristics of raffinate sludge after dewatered using the filter press.

Parameter	Value	Comment
Density	1.36 g/cm^3	Average of four measurements made on site May 2003.
% solids	45%	Average of four measurements made on site May 2003.
% weight reduction	46%	Average of four measurements made on site May 2003.
Load bearing	41.7 lb/in^2	Unconfined compressive strength with penetrometer May 2003.
Weight per package	max 2200 lb	The rated weight capacity of the package. The package is a 3'x3'x4' polypropylene sack.

Attachment D1ci

Basis for the Selection of Constituents[1]

The RCRA Facility Investigation required contamination characterization for those constituents found in 40 CFR Part 261 Appendix VIII and Part 264 Appendix IX.

SFC identified potential Appendix VIII and Appendix IX contaminants at the Site utilizing EPA's RFI guidance document (EPA 530/SW-89-031), herein referred to as the guidance document. Specifically, List 4 (Industry Specific Monitoring Constituents) of Volume 1 of the guidance document indicated those constituents which may be present at a site based on the site's particular industrial classification.

Samples specified in the RFI Workplan for comprehensive analysis were analyzed for those Appendix VIII and Appendix IX constituents specified in the guidance document for the mining industry, the inorganic chemicals industry and the non-ferrous metals industry, with the following exceptions:

- Metals analysis conducted by Method 6010 (SW-846) provided results for two (2) additional metals which are not listed in the guidance document. The two metals (calcium and molybdenum) were included based on their potential presence in some of the Site process materials.

[1] Sequoyah Fuels Corporation, Final RCRA Facility Investigation Workplan, Section 1.5.4 *Comprehensive List of Constituents*, October 31, 1994 (Revised January 4, 1995).

Attachment D1ci

- Analysis was not provided for the organochlorine pesticides listed in Table 2-8. Pesticides at the Facility were applied only as a function of their intended use. No reports of pesticide spills were revealed through Facility records or employee interviews. Storage of pesticides was in the original container with no facility available for bulk storage. Therefore, residual pesticide levels found in Facility soils would be a result of standard practices for pesticide usage.

- Four constituents listed in both 40 CFR Appendix VIII and in the guidance document are not normally included in the results for the analytical methods being utilized for the RFI. A review of the four constituents was conducted, and a determination made, that none of the four (7-H-dibenzo(c,g)carbazole, dibenzo(a,h)pyrene, dibenzo(a,i)pyrene and chloroacetaldehyde) have the potential to be present at the Facility. This determination was based on the fact that none of the four constituents have been associated either directly or indirectly with Facility processes, nor are any of the four potentially present from the breakdown of chemicals which were associated with the process.

D. CHEMICAL AND HAZARDOUS CHARACTERISTICS

1. DESCRIPTION AND HISTORY OF MATERIAL

c. The basis of hazardous material or waste determinations.

Attachment D1ci

The constituents associated with the three types of industries referenced above are listed in the guidance document in Tables 2-1, 2-2, 2-3, 2-4, 2-6, 2-8, 2-10, 2-11, 2-13, 2-14 and 2-15 and are shown in Table 3 of the RCRA Facility Investigation (RFI) Workplan and included below. Table 3 lists the organic and inorganic constituents included, as well as those to be excluded, from the results for samples subjected to comprehensive analysis in SFC's RFI Report. Those constituents which were not included in the RFI Report are identified in the table. This comprehensive list of constituents was analyzed by utilizing Methods 6010 (metals), 7470 and 7471 (aqueous and non-aqueous mercury, respectively), 8240 (volatile organics) and 8270 (semivolatile organics) of EPA document SW-846, Third Edition. …

D. CHEMICAL AND HAZARDOUS CHARACTERISTICS

1. DESCRIPTION AND HISTORY OF MATERIAL

c. The basis of hazardous material or waste determinations.

Attachment D1ci

Table 3. Comprehensive List of Constituents

Page 1 of 6

Phenols and Organic Acids	
Benzoic acid [1]	4,6-Dinitro-o-cresol
Benzyl alcohol	2,4-Dinitrophenol
2-sec-Butyl-4,6-dinitrophenol [1,4]	2-Methyl-4,6-dinitrophenol [1]
4-Chloro-3-methylphenol [1]	2-Nitrophenol
2-Chlorophenol	4-Nitrophenol
Cresol (methyl phenols)	Pentachlorophenol
2-Cyclohexyl-4,6-dinitrophenol [1,4]	Phenol
2,4-Dichlorophenol	Tetrachlorophenols
2,6-Dichlorophenol	Trichlorophenols
2,4-Dimethylphenol	

Phthalate Esters	
Benzyl butyl phthalate	Di-n-butyl phthalate [1]
Bis(2-ethylhexyl)phthalate	Dimethyl phthalate
Diethyl phthalate	Di-n-octyl phthalate

Nitroaromatics and Cyclic Ketones	
Dinitrobenzene [1]	Isophorone
2,4-Dinitrotoluene	Naphthoquinone
2,6-Dinitrotoluene	Nitrobenzene

D. CHEMICAL AND HAZARDOUS CHARACTERISTICS
1. DESCRIPTION AND HISTORY OF MATERIAL
c. The basis of hazardous material or waste determinations.

Attachment D1ci

Table 3. Comprehensive List of Constituents

Page 2 of 6

Polyaromatic Hydrocarbons	
Acenaphthene	Dibenzo(a,h)anthracene
Acenaphthylene	7H-Dibenzo(c,g)carbazole [1,4]
Anthracene	Dibenzo(a,e)pyrene [1]
Benzo(a)anthracene	Dibenzo(a,h)pyrene [1,4]
Benzo(a)pyrene	Dibenzo(a,i)pyrene [1,4]
Benzo(b)fluoranthene [1]	Fluoranthene
Benzo(j)fluoranthene	Fluorene
Benzo(k)fluoranthene	Indeno(1,2,3-cd)pyrene
Benzo(g,h,i)perylene	3-Methylcholanthrene
Chrysene	Naphthalene
Dibenz(a,h)acridine [1]	Phenanthrene
Dibenz(a,j)acridine [1]	Pyrene

Metals	
Aluminum	Magnesium
Antimony	Manganese
Arsenic	Mercury
Barium	Molybdenum [3]
Beryllium	Nickel
Cadmium	Potassium
Calcium [3]	Selenium
Chromium	Silver
Cobalt	Sodium
Copper	Thallium
Iron	Vanadium
Lead	Zinc

E. CHEMICAL AND HAZARDOUS CHARACTERISTICS

2. DESCRIPTION AND HISTORY OF MATERIAL

c. The basis of hazardous material or waste determinations.

Attachment D1ci

Table 3. Comprehensive List of Constituents

Page 3 of 6

Base/Neutrals		
Acenaphthene	4-Chlorophenyl phenyl ether	Heptachlor [2]
Acenaphthylene	Chrysene	Heptachlor epoxide [2]
Acetophenone	4,4'-DDD [2]	Hexachlorobenzene
Aldrin [2]	4,4'-DDE [2]	Hexachlorobutadiene
Aniline	4,4'-DDT [2]	Hexachlorocyclopentadiene
Anthracene	Dibenz(a,j)acridine [1]	Hexachloroethane
4-Aminobiphenyl	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene
Aroclor-1016	Dibenzofuran	Isophorone
Aroclor-1221	Di-n-butyl phthalate	Methoxychlor [2]
Aroclor-1232	1,3-Dichlorobenzene	3-Methylcholanthrene
Aroclor-1242	1,4-Dichlorobenzene	Methyl methanesulfonate
Aroclor-1248	1,2-Dichlorobenzene	2-Methylnaphthalene
Aroclor-1254	3,3'-Dichlorobenzidine	Naphthalene
Aroclor-1260	Dieldrin [2]	1-Naphthylamine
Benzidine [1]	Diethyl phthalate	2-Naphthylamine
Benzo(a)anthracene	p-Dimethylaminoazobenzene	2-Nitroaniline
Benzo(b)fluoranthene	7,12-Dimethylbenz(a)anthracene	3-Nitroaniline
Benzo(k)fluoranthene	a-,a-Dimethylphenethylamine	4-Nitroaniline
Benzo(g,h,i)perylene	Dimethyl phthalate	Nitrobenzene
Benzo(a)pyrene	2,4-Dinitrotoluene	N-Nitroso-di-n-butylamine
α-BHC [2]	2,6-Dinitrotoluene	N-Nitrosodimethylamine
β-BHC [2]	Diphenylamine	N-Nitrosodiphenylamine
δ-BHC [2]	1,2-Diphenylhydrazine	N-Nitrosodipropylamine
γ-BHC [2]	Di-n-octyl phthalate	N-Nitrosopiperidine
Bis(2-chloroethoxy)methane	Endosulfan I [2]	Pentachlorobenzene
Bis(2-chloroethyl)ether [1]	Endosulfan II [2]	Pentachloronitrobenzene
Bis(2-chloroisopropyl)ether	Endosulfan sulfate [2]	Phenacetin
Bis(2-ethylhexyl)phthalate	Endrin [2]	Phenanthrene
4-Bromophenyl phenyl ether	Endrin aldehyde [2]	2-Picoline
Butyl benzyl phthalate	Endrin ketone [1]	Pronamide
Chlordane [2]	Ethyl methanesulfonate	Pyrene
4-Chloroaniline	Fluoranthene	1,2,4,5-Tetrachlorobenzene
1-Chloronaphthalene [1]	Fluorene	1,2,4-Trichlorobenzene
2-Chloronaphthalene	2-Fluorobiphenyl [1,4]	Toxaphene [2]

F. CHEMICAL AND HAZARDOUS CHARACTERISTICS

3. DESCRIPTION AND HISTORY OF MATERIAL

c. The basis of hazardous material or waste determinations.

Attachment D1ci

Table 3. Comprehensive List of Constituents

Page 4 of 6

Organochlorine Pesticides and PCB's	
Aldrin [2]	Endrin aldehyde [2]
α-BHC [2]	Heptachlor [2]
β-BHC [2]	Heptachlor epoxide [2]
δ-BHC [2]	Kepone [2]
γ-BHC(Lindane) [2]	Methoxychlor [2]
Chlordane [2]	Toxaphene [2]
4,4'-DDD [2]	PCB-1016(Aroclor-1016)
4,4'-DDE [2]	PCB-1221(Aroclor-1221)
4,4'-DDT [2]	PCB-1232(Aroclor-1232)
Dieldrin [2]	PCB-1242(Aroclor-1242)
Endosulfan I [2]	PCB-1248(Aroclor-1248)
Endosulfan II [2]	PCB-1254(Aroclor-1254)
Endosulfan sulfate [2]	PCB-1260(Aroclor-1260)
Endrin [2]	

F. CHEMICAL AND HAZARDOUS CHARACTERISTICS

3. DESCRIPTION AND HISTORY OF MATERIAL

c. The basis of hazardous material or waste determinations.

Attachment D1ci

Table 3. Comprehensive List of Constituents

Page 5 of 6

Halogenated Volatiles	
Benzyl chloride [1]	1,2-Dichlorobenzene
Bis(2-chloroethoxy)methane	1,3-Dichlorobenzene
Bis(2-chloroisopropyl)ether [1]	1,4-Dichlorobenzene
Bromobenzene [1]	Dichlorodifluoromethane
Bromodichloromethane	1,1-Dichloroethane
Bromoform	1,2-Dichloroethane
Bromomethane	1,1-Dichloroethylene
Carbon tetrachloride	trans-1,2-Dichloroethylene
Chloracetaldehyde [1,4]	Dichloromethane [1,4]
Chloral [1,4]	1,2-Dichloropropane
Chlorobenzene	1,3-Dichloropropylene [1]
Chloroethane	1,1,2,2-Tetrachloroethane
Chloroform	1,1,1,2-Tetrachloroethane
1-Chlorohexane [1,4]	Tetrachloroethylene
2-Chloroethyl vinyl ether [1]	1,1,1-Trichloroethane
Chloromethane	1,1,2-Trichloroethane
Chloromethyl methyl ether [1]	Trichloroethylene
Chlorotoluene [1]	Trichlorofluoromethane
Dibromochloromethane	Trichloropropane [1]
Dibromomethane	Vinyl chloride

Aromatic Volatiles	
Benzene	1,4-Dichlorbenzene
Chlorbenzene	Ethyl benzene
1,2-Dichlorobenzene	Toluene
1,3-Dichlorobenzene	Xylenes(Dimethyl benzenes)

Acentonitrile, Acrolein, Acrylonitrile		
Acentonitrile	Acrolein(Propenal)	Acrylonitrile

F. CHEMICAL AND HAZARDOUS CHARACTERISTICS

3. DESCRIPTION AND HISTORY OF MATERIAL

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Attachment D1ci

Table 3. Comprehensive List of Constituents

Page 6 of 6

Volatiles	
Acetone	1,1-Dichloroethene
Acrolein	trans-1,2-Dichloroethene
Acrylonitrile	cis-1,3-Dichloropropene
Benzene	trans-1,3-Dichloropropene
Bromochloromethane [1]	1,4-Difluorobenzene [1]
Bromodichloromethane	Ethanol [1]
4-Bromofluorobenzene [1]	Ethylbenzene
Bromoform	Ethyl methacrylate
Bromomethane	2-Hexanone
2-Butanone (MEK)	Iodomethane [1]
Carbon disulfide	Methylene chloride
Carbon tetrachloride	4-Methyl-2-pentanone
Chlorobenzene	Styrene
Chlorodibromomethane	1,1,2,2-Tetrachloroethane
Chloroethane	Toluene
2-Chloroethyl vinyl ether	1,1,1-Trichloroethane
Chloroform	1,1,2-Trichloroethane
Chloromethane [1]	Trichloroethene
Dibromomethane [1]	Trichlorofluoromethane
1,4-Dichloro-2-butane	1,2,3-Trichloropropane
Dichlorodifluoromethane	Vinyl acetate
1,1-Dichloroethane	Vinyl chloride
1,2-Dichloroethane	Xylene

[1] Will not be provided because constituent is not listed in either 40 CFR 261, Appendix VIII or 40 CFR 264, Appendix IX.

[2] Analytical results for organochlorine pesticides will not be provided.

[3] Will be provided and is in addition to the metals specified in the RFI guidance document.

[4] Will not be provided because laboratory method does not normally provide result.

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AMENDED REPORT
ISSUED 2-27-95
"J's" and Tics removed)
EW

SEQUOYAH FUELS
P.O. BOX 610
GORE OK 74435

ATTENTION: SONNY EIDSON

RE: PROJECT: RFI
USPCI-AS REPORT: 9078

Under this cover USPCI Analytical Services is submitting the analytical data for the following samples:

Lab Number	Customer Number
50000491	SD-13
50000492	SD-13D
50000493	SD-14
50000494	SD-15
50000495	SD-15DUP
50000496	SD-16

These samples were analyzed using EPA or other recognized methodology as specified in the report. Each test is performed under a rigorous QA/QC program including blanks, method controls and matrix spikes. All methods are calibrated using authentic reference materials with a minimum of a three point calibration curve as appropriate. All practical quantitation limits are validated and reflect method specific or project specific requirements. Some detection limits may be listed as higher than the targeted program limits due to sample specific interferences or limited sample size.

If you need help in evaluating the data or need further information please call the laboratory at 918-446-1162.

Respectfully submitted for
USPCI Analytical Services

Elizabeth R. Walker

Elizabeth R. Walker
Quality Assurance Officer

SONNY EIDSON
SEQUOYAH FUELS
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Tulsa, OK 74107-6100

918/446-1162
918/445-0945 Fax

SAMPLE IDENTIFICATION: 50000493
CUSTOMER IDENTIFICATION: SD-14

PROJECT NUMBER: RFI
REPORT NUMBER: 9078
DATE SAMPLED: 01/25/95 DATE SUBMITTED: 01/26/95
TYPE OF MATERIAL: SLUDGE DATE COMPLETED: 02/16/95

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
Mercury (Total)	SW 7471	0.01 mg/kg	0.34 mg/kg
Volatiles			
Acetone	SW 8240	0.1 mg/kg	BDL mg/kg
Acetonitrile	SW 8240	0.1 mg/kg	BDL mg/kg
Acrolein	SW 8240	0.1 mg/kg	BDL mg/kg
Acrylonitrile	SW 8240	0.1 mg/kg	BDL mg/kg
Benzene	SW 8240	0.005 mg/kg	BDL mg/kg
Bromodichloromethane	SW 8240	0.005 mg/kg	BDL mg/kg
Bromoform	SW 8240	0.005 mg/kg	BDL mg/kg
2-Butanone	SW 8240	0.1 mg/kg	0.3 mg/kg
Carbon disulfide	SW 8240	0.005 mg/kg	BDL mg/kg
Carbon Tetrachloride	SW 8240	0.005 mg/kg	BDL mg/kg
Chlorobenzene	SW 8240	0.005 mg/kg	BDL mg/kg
Chloroethane	SW 8240	0.005 mg/kg	BDL mg/kg
2-Chloroethyl vinyl ether	SW 8240	0.01 mg/kg	BDL mg/kg
Chloroform	SW 8240	0.005 mg/kg	BDL mg/kg
Chlorodibromomethane	SW 8240	0.005 mg/kg	BDL mg/kg
1,4-Dichloro-2-butene	SW 8240	0.1 mg/kg	BDL mg/kg
Dichlorodifluoromethane	SW 8240	0.005 mg/kg	BDL mg/kg
1,1-Dichloroethane	SW 8240	0.005 mg/kg	BDL mg/kg
1,2-Dichloroethane	SW 8240	0.005 mg/kg	BDL mg/kg
1,1-Dichloroethene	SW 8240	0.005 mg/kg	BDL mg/kg
trans-1,2-Dichloroethene	SW 8240	0.005 mg/kg	BDL mg/kg
1,2-Dichloropropane	SW 8240	0.005 mg/kg	BDL mg/kg
cis-1,3-Dichloropropene	SW 8240	0.005 mg/kg	BDL mg/kg

BDL = BELOW QUANTITATION LIMIT % REC = PERCENT RECOVERY (T) = TOTALS
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DATE SUBMITTED: 01/26/95
DATE COMPLETED: 02/16/95

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
trans-1,3-Dichloropropene	SW 8240	0.005 mg/kg	BDL mg/kg
Ethyl methacrylate	SW 8240	0.005 mg/kg	BDL mg/kg
2-Hexanone	SW 8240	0.05 mg/kg	0.08 mg/kg
4-Methyl-2-pentanone	SW 8240	0.05 mg/kg	BDL mg/kg
Methylene chloride	SW 8240	0.01 mg/kg	BDL mg/kg
Styrene	SW 8240	0.005 mg/kg	BDL mg/kg
1,1,1,2-Tetrachloroethane	SW 8240	0.005 mg/kg	BDL mg/kg
1,1,2,2-Tetrachloroethane	SW 8240	0.005 mg/kg	BDL mg/kg
Tetrachloroethene	SW 8240	0.005 mg/kg	BDL mg/kg
Toluene	SW 8240	0.005 mg/kg	BDL mg/kg
1,1,1-Trichloroethane	SW 8240	0.005 mg/kg	BDL mg/kg
1,1,2-Trichloroethane	SW 8240	0.005 mg/kg	BDL mg/kg
Trichloroethene	SW 8240	0.005 mg/kg	BDL mg/kg
Trichlorofluoromethane	SW 8240	0.005 mg/kg	BDL mg/kg
1,2,3-Trichloropropane	SW 8240	0.005 mg/kg	BDL mg/kg
Vinyl acetate	SW 8240	0.05 mg/kg	BDL mg/kg
Vinyl chloride	SW 8240	0.01 mg/kg	BDL mg/kg
Total xylenes	SW 8240	0.005 mg/kg	BDL mg/kg
Semivolatiles			
Acenaphthene	SW 8270	0.05 mg/kg	BDL mg/kg
Acenaphthylene	SW 8270	0.05 mg/kg	BDL mg/kg
Acetophenone	SW 8270	0.2 mg/kg	BDL mg/kg
Aldrin	SW 8270	0.2 mg/kg	BDL mg/kg
4-Aminobiphenyl	SW 8270	0.2 mg/kg	BDL mg/kg
Aniline	SW 8270	0.2 mg/kg	BDL mg/kg
Anthracene	SW 8270	0.05 mg/kg	BDL mg/kg

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PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
Aroclor-1016	SW 8270	2 mg/kg	BDL mg/kg
Aroclor-1221	SW 8270	2 mg/kg	BDL mg/kg
Aroclor-1232	SW 8270	2 mg/kg	BDL mg/kg
Aroclor-1242	SW 8270	2 mg/kg	BDL mg/kg
Aroclor-1248	SW 8270	2 mg/kg	BDL mg/kg
Aroclor-1254	SW 8270	2 mg/kg	BDL mg/kg
Aloclor-1260	SW 8270	2 mg/kg	BDL mg/kg
Benzo(a)anthracene	SW 8270	0.05 mg/kg	BDL mg/kg
Benzo(b)fluoranthene	SW 8270	0.05 mg/kg	BDL mg/kg
Benzo(k)fluoranthene	SW 8270	0.05 mg/kg	BDL mg/kg
Benzo(g,h,i)perylene	SW 8270	0.2 mg/kg	BDL mg/kg
Benzo(a)pyrene	SW 8270	0.05 mg/kg	BDL mg/kg
Benzyl alcohol	SW 8270	0.4 mg/kg	BDL mg/kg
alpha-BHC	SW 8270	0.2 mg/kg	BDL mg/kg
beta-BHC	SW 8270	0.2 mg/kg	BDL mg/kg
delta-BHC	SW 8270	0.2 mg/kg	BDL mg/kg
gamma-BHC (Lindane)	SW 8270	0.2 mg/kg	BDL mg/kg
Bis(2-chloroethoxy)methane	SW 8270	0.2 mg/kg	BDL mg/kg
Bis(2-chloroethyl)ether	SW 8270	0.2 mg/kg	BDL mg/kg
Bis(2-chloroisopropyl)ether	SW 8270	0.2 mg/kg	BDL mg/kg
Bis(2-ethylhexyl)phthalate	SW 8270	0.2 mg/kg	BDL mg/kg
4-Bromophenyl phenyl ether	SW 8270	0.2 mg/kg	BDL mg/kg
Butyl benzyl phthalate	SW 8270	0.2 mg/kg	BDL mg/kg
Chlordane	SW 8270	1 mg/kg	BDL mg/kg
4-Chloroaniline	SW 8270	0.4 mg/kg	BDL mg/kg
2-Chloronaphthalene	SW 8270	0.2 mg/kg	BDL mg/kg
2-Chlorophenol	SW 8270	0.2 mg/kg	BDL mg/kg

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PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
4-Chlorophenyl phenyl ether	SW 8270	0.2 mg/kg	BDL mg/kg
Chrysene	SW 8270	0.05 mg/kg	BDL mg/kg
2-Methylphenol	SW 8270	0.2 mg/kg	BDL mg/kg
3- and 4-methylphenol	SW 8270	0.2 mg/kg	BDL mg/kg
4,4'-DDD	SW 8270	0.2 mg/kg	BDL mg/kg
4,4'-DDE	SW 8270	0.2 mg/kg	BDL mg/kg
4,4'-DDT	SW 8270	0.2 mg/kg	BDL mg/kg
Dibenz(a,h)anthracene	SW 8270	0.2 mg/kg	BDL mg/kg
Dibenzofuran	SW 8270	0.2 mg/kg	BDL mg/kg
Dibenz(a,e)pyrene	SW 8270	0.2 mg/kg	BDL mg/kg
Di-n-butylphthalate	SW 8270	0.2 mg/kg	BDL mg/kg
1,2-Dichlorobenzene	SW 8270	0.2 mg/kg	BDL mg/kg
1,3-Dichlorobenzene	SW 8270	0.2 mg/kg	BDL mg/kg
1,4-Dichlorobenzene	SW 8270	0.2 mg/kg	BDL mg/kg
3,3'-Dichlorobenzidine	SW 8270	0.4 mg/kg	BDL mg/kg
2,4-Dichlorophenol	SW 8270	0.2 mg/kg	BDL mg/kg
2,6-Dichlorophenol	SW 8270	0.2 mg/kg	BDL mg/kg
Dieldrin	SW 8270	0.2 mg/kg	BDL mg/kg
Diethyl phthalate	SW 8270	0.2 mg/kg	BDL mg/kg
p-Dimethylaminoazobenzene	SW 8270	0.2 mg/kg	BDL mg/kg
7,12-Dimethylbenz(a)anthracene	SW 8270	0.2 mg/kg	BDL mg/kg
1,1-Dimethylphenethylamine	SW 8270	0.2 mg/kg	BDL mg/kg
2,4-Dimethylphenol	SW 8270	0.2 mg/kg	BDL mg/kg
Dimethylphthalate	SW 8270	0.2 mg/kg	BDL mg/kg
4,6-Dinitro-2-methylphenol	SW 8270	1 mg/kg	BDL mg/kg
2,4-Dinitrophenol	SW 8270	1 mg/kg	BDL mg/kg
2,4-Dinitrotoluene	SW 8270	0.2 mg/kg	BDL mg/kg

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PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
2,6-Dinitrotoluene	SW 8270	0.2 mg/kg	BDL mg/kg
Di-n-octylphthalate	SW 8270	0.2 mg/kg	BDL mg/kg
1,2-Diphenylhydrazine	SW 8270	0.2 mg/kg	BDL mg/kg
Diphenylamine	SW 8270	0.2 mg/kg	BDL mg/kg
Endosulfan I	SW 8270	0.2 mg/kg	BDL mg/kg
Endosulfan II	SW 8270	0.2 mg/kg	BDL mg/kg
Endosulfan sulfate	SW 8270	0.2 mg/kg	BDL mg/kg
Endrin	SW 8270	0.2 mg/kg	BDL mg/kg
Endrin aldehyde	SW 8270	0.2 mg/kg	BDL mg/kg
Ethyl methanesulfonate	SW 8270	0.2 mg/kg	BDL mg/kg
Fluoranthene	SW 8270	0.05 mg/kg	BDL mg/kg
Fluorene	SW 8270	0.05 mg/kg	BDL mg/kg
Heptachlor	SW 8270	0.2 mg/kg	BDL mg/kg
Heptachlor epoxide	SW 8270	0.2 mg/kg	BDL mg/kg
Hexachlorobenzene	SW 8270	0.2 mg/kg	BDL mg/kg
Hexachlorobutadiene	SW 8270	0.2 mg/kg	BDL mg/kg
Hexachlorocyclopentadiene	SW 8270	0.2 mg/kg	BDL mg/kg
Hexachloroethane	SW 8270	0.2 mg/kg	BDL mg/kg
Indeno(1,2,3-cd)pyrene	SW 8270	0.2 mg/kg	BDL mg/kg
Isophorone	SW 8270	0.2 mg/kg	BDL mg/kg
Methoxychlor	SW 8270	0.2 mg/kg	BDL mg/kg
3-Methylchloanthrene	SW 8270	0.2 mg/kg	BDL mg/kg
Methyl methanesulfonate	SW 8270	0.2 mg/kg	BDL mg/kg
2-Methylnaphthalene	SW 8270	0.05 mg/kg	BDL mg/kg
Naphthalene	SW 8270	0.05 mg/kg	BDL mg/kg
1,4-Naphthoquinone	SW 8270	0.2 mg/kg	BDL mg/kg
1-Naphthylamine	SW 8270	0.2 mg/kg	BDL mg/kg

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TYPE OF MATERIAL: SLUDGE DATE COMPLETED: 02/16/95

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
2-Naphthylamine	SW 8270	0.2 mg/kg	BDL mg/kg
2-Nitroaniline	SW 8270	1 mg/kg	BDL mg/kg
3-Nitroaniline	SW 8270	1 mg/kg	BDL mg/kg
4-Nitroaniline	SW 8270	0.4 mg/kg	BDL mg/kg
Nitrobenzene	SW 8270	0.2 mg/kg	BDL mg/kg
2-Nitrophenol	SW 8270	0.2 mg/kg	BDL mg/kg
4-Nitrophenol	SW 8270	1 mg/kg	BDL mg/kg
N-Nitrosodi-n-butylamine	SW 8270	0.2 mg/kg	BDL mg/kg
N-Nitrosodimethylamine	SW 8270	0.2 mg/kg	BDL mg/kg
N-Nitrosodiphenylamine	SW 8270	0.2 mg/kg	BDL mg/kg
N-Nitrosodipropylamine	SW 8270	0.2 mg/kg	BDL mg/kg
N-Nitrosopiperidine	SW 8270	0.2 mg/kg	BDL mg/kg
Pentachlorobenzene	SW 8270	0.2 mg/kg	BDL mg/kg
Pentachloronitrobenzene	SW 8270	0.2 mg/kg	BDL mg/kg
Pentachlorophenol	SW 8270	1 mg/kg	BDL mg/kg
Phenacetin	SW 8270	0.4 mg/kg	BDL mg/kg
Phenanthrene	SW 8270	0.05 mg/kg	BDL mg/kg
Phenol	SW 8270	0.2 mg/kg	BDL mg/kg
2-Picoline	SW 8270	0.2 mg/kg	BDL mg/kg
Pronamide	SW 8270	0.2 mg/kg	BDL mg/kg
Pyrene	SW 8270	0.05 mg/kg	BDL mg/kg
1,2,4,5-Tetrachlorobenzene	SW 8270	0.2 mg/kg	BDL mg/kg
2,3,4,6-Tetrachlorophenol	SW 8270	0.2 mg/kg	BDL mg/kg
Toxaphene	SW 8270	2 mg/kg	BDL mg/kg
1,2,4-Trichlorobenzene	SW 8270	0.2 mg/kg	BDL mg/kg
2,4,5-Trichlorophenol	SW 8270	0.2 mg/kg	BDL mg/kg
2,4,6-Trichlorophenol	SW 8270	0.2 mg/kg	BDL mg/kg

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SAMPLE IDENTIFICATION: 50000493
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DATE SAMPLED: 01/25/95
TYPE OF MATERIAL: SLUDGE

DATE SUBMITTED: 01/26/95
DATE COMPLETED: 02/16/95

PARAMETER	REFERENCE METHOD	RECOVERY LIMITS (%)		RESULT (%)	
Volatiles-Surrogates					
1,2-Dichloroethane-d4	SW 8240	76 -	114	81	
Toluene-d8	SW 8240	88 -	110	89	
Bromofluorobenzene	SW 8240	86 -	115	80	L
Semivolatiles-Surrogates					
2-Fluorophenol	SW 8270	21 -	100	72	
d5-Phenol	SW 8270	10 -	94	88	
d5-Nitrobenzene	SW 8270	35 -	114	83	
2-Fluorobiphenyl	SW 8270	43 -	116	83	
2,4,6-Tribromophenol	SW 8270	10 -	123	89	
d14-Terphenyl	SW 8270	33 -	141	64	

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured. The value listed reflects the dilution factor. Some compounds may be run less dilute for better detection.

I indicates interference of surrogate compound, recoveries indeterminable.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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QA/QC Report
Cross Reference
Project Name: RFI

USPCI SAMPLE ID	CUSTOMER ID
50000491	SD-13
50000492	SD-13 DUP
50000493	SD-14
50000494	SD-15
50000495	SD-15 DUP
50000496	SD-16

QA/QC Report
Holding Times

Date at Lab: 1445 01/26/95

Holding Times

PARAMETER	SAMPLE ID	HOLDING TIME	SAMPLING DATE	EXTRACTION	ANALYSIS
Volatiles	50000491	14 days	1500 01/24/95		01/30/95
	50000492		1500 01/24/95		01/30/95
	50000493		0945 01/25/95		01/30/95
	50000494		1500 01/25/95		02/03/95
	50000495		1500 01/25/95		01/30/95
	50000496		1130 01/25/95		01/30/95
Semi-Volatiles	50000491	14 days for extraction, 40 days after for analysis	1500 01/24/95	02/01/95 (All samples)	02/10/95 (All samples)
	50000492		1500 01/24/95		
	50000493		0945 01/25/95		
	50000494		1500 01/25/95		
	50000495		1500 01/25/95		
	50000496		1130 01/25/95		
T. Mercury	50000491	13 days	1500 01/24/95		02/2-3/95 (All samples)
	50000492		1500 01/24/95		
	50000493		0945 01/25/95		
	50000494		1500 01/25/95		
	50000495		1500 01/25/95		
	50000496		1130 01/25/95		

Samples exceeding method recommended holding times are indicated with an asterisk (*).

QA/QC REPORT
METALS - SOIL
MATRIX SPIKE: 50000496
QC FILE ID: 50000497

PARAMETER	BLANK RESULTS MG/L	SAMPLE RESULTS MG/L	SPIKE LEVEL RESULTS MG/L	SPIKE I RESULTS MG/L	SPIKE II RESULTS MG/L	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE	METHOD CONTROL	M.CTRL RECOVERY
MERCURY	BDL	0.00048 HG	0.0100	0.0109	0.0100	104.3%	95.4%	99.9%	8.5%	0.0098	98.0%

MG/L UNIT VALUES ARE BASED ON DIGESTATE CONCENTRATION

* = OUT OF QC LIMIT BDL = BELOW DETECTION LIMIT + = INSTRUMENT SPIKE (QC ACCEPTABLE LIMIT IS 75-125%)

QA/QC REPORT
VOLATILES BY GC/MS - SOIL
METHOD CONTROL
QC FILE ID: 50000497

PARAMETER	BLANK RESULTS UG/KG	SAMPLE RESULTS UG/KG	SPIKE LEVEL UG/KG	SPIKE I RESULTS UG/KG	SPIKE II RESULTS UG/KG	RECOVERY I	RECOVERY II	RPD	QC LIMITS RPD	QC LIMITS % REC
1,1-Dichloroethene	BDL	BDL	40	48	47	120%	118%	2	35	0-234
Methylene chloride	BDL	BDL	40	45	45	106%	105%	1	29	0-221
trans-1,2-Dichloroethene	BDL	BDL	40	45	45	113%	112%	1	15	54-156
1,1-Dichloroethane	BDL	BDL	40	44	43	109%	108%	1	13	59-155
Chloroform	BDL	BDL	40	45	45	114%	113%	0	15	51-138
1,1,1-Trichloroethane	BDL	BDL	40	45	45	112%	112%	0	17	52-162
Carbon tetrachloride	BDL	BDL	40	49	48	123%	119%	3	8	70-140
Benzene	BDL	BDL	40	43	42	109%	106%	2	19	37-151
1,2-Dichloroethane	BDL	BDL	40	48	47	119%	118%	1	18	49-155
Trichloroethene	BDL	BDL	40	45	45	114%	112%	2	11	71-157
1,2-Dichloropropane	BDL	BDL	40	45	43	111%	108%	3	38	0-210
Bromodichloromethane	BDL	BDL	40	46	45	114%	112%	1	18	35-155
cis-1,3-Dichloropropene	BDL	BDL	40	45	44	113%	110%	3	47	0-227
Toluene	BDL	BDL	40	44	43	110%	107%	3	17	47-150
trans-1,3-Dichloropropene	BDL	BDL	40	39	38	97%	94%	3	16	17-183
1,1,2-Trichloroethane	BDL	BDL	40	49	50	122%	123%	1	16	52-150
Tetrachloroethene	BDL	BDL	40	41	39	102%	96%	5	13	64-148
Chlorodibromomethane	BDL	BDL	40	48	47	119%	116%	2	16	53-149
Chlorobenzene	BDL	BDL	40	45	43	111%	107%	3	20	37-160
Ethylbenzene	BDL	BDL	40	47	44	116%	110%	5	21	37-162
Bromoform	BDL	BDL	40	49	46	121%	114%	5	19	45-169
1,1,2,2-Tetrachloroethane	BDL	BDL	40	55	53	136%	130%	5	17	46-157

BDL = BELOW DETECTION LIMITS   NIS = NOT IN SPIKE MIX   # = OUT OF QC LIMITS   D = DETECTABLE

QA/QC REPORT
VOLATILES BY GC/MS - SOIL
MATRIX SPIKE: 50000382
QC FILE ID: 50000497

PARAMETER	BLANK RESULTS UG/KG	SAMPLE RESULTS UG/KG	SPIKE LEVEL UG/KG	SPIKE I RESULTS UG/KG	SPIKE II RESULTS UG/KG	RECOVERY I	RECOVERY II	RPD	QC LIMITS RPD	QC LIMITS % REC
1,1-Dichloroethene	BDL	BDL	40	49	51	124%	127%	3	35	0-234
Methylene chloride	BDL	BDL	40	53	56	102%	110%	7	29	0-221
trans-1,2-Dichloroethene	BDL	BDL	40	41	39	101%	97%	5	15	54-156
1,1-Dichloroethane	BDL	BDL	40	44	43	110%	108%	2	13	59-155
Chloroform	BDL	BDL	40	49	48	123%	120%	2	15	51-138
1,1,1-Trichloroethane	BDL	BDL	40	50	49	125%	122%	2	17	52-162
Carbon tetrachloride	BDL	BDL	40	59	60	148% #	150% #	1	8	70-140
Benzene	BDL	BDL	40	43	42	107%	106%	1	19	37-151
1,2-Dichloroethane	BDL	BDL	40	55	55	138%	138%	1	18	49-155
Trichloroethene	BDL	BDL	40	77	76	192% #	190% #	1	11	71-157
1,2-Dichloropropane	BDL	BDL	40	44	43	111%	106%	4	38	0-210
Bromodichloromethane	BDL	BDL	40	51	48	127%	120%	6	18	35-155
cis-1,3-Dichloropropene	BDL	BDL	40	43	41	108%	102%	6	47	0-227
Toluene	BDL	BDL	40	42	41	104%	101%	3	17	47-150
trans-1,3-Dichloropropene	BDL	BDL	40	37	35	93%	88%	5	16	17-183
1,1,2-Trichloroethane	BDL	BDL	40	45	38	113%	96%	16#	16	52-150
Tetrachloroethene	BDL	BDL	40	44	45	110%	111%	1	13	64-148
Chlorodibromomethane	BDL	BDL	40	54	54	136%	135%	1	16	53-149
Chlorobenzene	BDL	BDL	40	42	41	106%	102%	3	20	37-160
Ethylbenzene	BDL	BDL	40	46	45	116%	113%	3	21	37-162
Bromoform	BDL	BDL	40	56	54	140%	135%	3	19	45-169
1,1,2,2-Tetrachloroethane	BDL	BDL	40	4	1	10% #	1% #	157#	17	46-157

BDL = BELOW DETECTION LIMITS   NIS = NOT IN SPIKE MIX   # = OUT OF QC LIMITS   D = DETECTABLE

QA/QC REPORT
SEMIVOLATILE SOIL
METHOD CONTROL
QC FILE ID: 50000497

PARAMETER	BLANK RESULTS MG/KG	SAMPLE RESULTS MG/KG	SPIKE LEVEL RESULTS MG/KG	SPIKE I RESULTS MG/KG	SPIKE II RESULTS MG/KG	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
4-NITROPHENOL #	BDL	BDL	1.60	1.52	1.45	94.8%	90.8%	92.8%	4.3%
2,6-DINITROTOLUENE	BDL	BDL	0.80	0.80	0.87	100.1%	108.8%	104.5%	8.3%
2,4-DINITROTOLUENE #	BDL	BDL	0.80	0.81	0.83	101.3%	103.8%	102.6%	2.4%
DIETHYL PHTHALATE	BDL	BDL	0.80	0.86	0.80	107.1%	100.0%	103.6%	6.9%
4-CHLOROPHENYL PHENYL ETHER	BDL	BDL	0.80	0.80	0.94	100.5%	117.1%	108.8%	15.3%
FLUORENE	BDL	BDL	0.80	0.91	0.96	114.1%	120.0%	117.0%	5.1%
4,6-DINITRO-2-METHYLPHENOL	BDL	BDL	1.60	1.72	1.64	107.4%	102.7%	105.0%	4.5%
N-NITROSO-DI-PHENYLAMINE	BDL	BDL	0.80	0.43	0.45	54.0%	56.0%	55.0%	3.6%
4-BROMOPHENYL PHENYL ETHER	BDL	BDL	0.80	0.91	0.90	114.0%	112.3%	113.2%	1.5%
HEXACHLOROBENZENE	BDL	BDL	0.80	0.95	0.92	118.9%	114.7%	116.8%	3.6%
PENTACHLOROPHENOL #	BDL	BDL	1.60	1.61	1.53	100.8%	95.3%	98.1%	5.6%
PHENANTHRENE	BDL	BDL	0.80	0.85	0.83	106.8%	104.3%	105.6%	2.4%
ANTHRACENE	BDL	BDL	0.80	0.89	0.89	111.7%	111.7%	111.7%	0.0%
DI-N-BUTYL PHTHALATE	BDL	BDL	0.80	0.86	0.82	107.3%	102.5%	104.9%	4.6%
PYRENE #	BDL	BDL	0.80	0.90	0.79	112.0%	98.2%	105.1%	13.1%
BENZO(A)ANTHRACENE	BDL	BDL	0.80	0.81	0.74	101.3%	92.2%	96.7%	9.4%
CHRYSENE	BDL	BDL	0.80	0.90	0.82	112.7%	103.1%	107.9%	8.9%
BIS(2-ETHYLHEXYL) PHTHALATE	BDL	BDL	0.80	0.96	0.89	119.8%	111.5%	115.6%	7.2%
DI-N-OCTYL PHTHALATE	BDL	BDL	0.80	1.01	1.14	126.6%	142.3%	134.5%	11.7%
BENZO(B)FLUORANTHENE	BDL	BDL	0.80	0.89	0.92	111.8%	115.0%	113.4%	2.8%
BENZO(K)FLUORANTHENE	BDL	BDL	0.80	1.18	1.22	147.3%	152.8%	150.1%	3.7%
BENZO(A)PYRENE	BDL	BDL	0.80	0.97	0.99	121.8%	123.8%	122.8%	1.6%
INDENO(1,2,3-cd)PYRENE	BDL	BDL	0.80	1.07	1.00	133.2%	124.7%	129.0%	6.6%
DIBENZO(A,H)ANTHRACENE	BDL	BDL	0.80	1.00	0.96	124.9%	120.4%	122.6%	3.6%
BENZO(G,H,I)PERYLENE	BDL	BDL	0.80	1.10	1.05	137.4%	131.2%	134.3%	4.6%

= SW 846 SPIKE CMPD. ; BDL = Below Detection Limits ; NIS = Not in Spike Mix ; * = Out of QC Limits ; D = Detectable

QA/QC REPORT
SEMIVOLATILE SOIL
MATRIX SPIKE: 50000491
QC FILE ID: 50000497

PARAMETER	BLANK RESULTS MG/KG	SAMPLE RESULTS MG/KG	SPIKE LEVEL RESULTS MG/KG	SPIKE I RESULTS MG/KG	SPIKE II RESULTS MG/KG	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
PHENOL #	BDL	BDL	1.60	0.89	0.92	55.9%	57.6%	56.7%	3.0%
BIS(2-CHLORO-ETHYL)ETHER	BDL	BDL	0.80	0.75	0.75	94.2%	94.3%	94.3%	0.2%
2-CHLOROPHENOL #	BDL	BDL	1.60	0.62	0.71	38.9%	44.2%	41.5%	12.7%
1,3-DICHLOROBENZENE	BDL	BDL	0.80	0.92	0.85	115.1%	106.9%	111.0%	7.4%
1,4-DICHLOROBENZENE #	BDL	BDL	0.80	0.91	0.98	114.1%	122.6%	118.4%	7.2%
BIS(2-CHLORO-ISOPROPYL)ETHER	BDL	BDL	0.80	0.88	0.87	109.5%	109.2%	109.4%	0.2%
N-NITROSO-DI-N-PROPYLAMINE #	BDL	BDL	0.80	0.00	0.00	0.0% *	0.0% *	0.0% *	0.0%
HEXACHLOROETHANE	BDL	BDL	0.80	0.78	0.76	97.4%	95.2%	96.3%	2.3%
NITROBENZENE	BDL	BDL	0.80	0.93	0.87	116.1%	108.8%	112.5%	6.5%
ISOPHORONE	BDL	BDL	0.80	1.02	1.00	127.9%	124.7%	126.3%	2.6%
2-NITROPHENOL	BDL	BDL	1.60	0.32	0.36	19.9% *	22.7% *	21.3% *	13.3%
2,4-DIMETHYLPHENOL	BDL	BDL	1.60	1.36	1.31	84.9%	81.8%	83.4%	3.7%
BIS(2-CHLOROETHOXY)METHANE	BDL	BDL	0.80	0.84	0.82	104.5%	102.9%	103.7%	1.5%
2,4-DICHLOROPHENOL	BDL	BDL	1.60	0.63	0.69	39.6%	43.0%	41.3%	8.1%
1,2,4-TRICHLOROBENZENE #	BDL	BDL	0.80	0.94	0.98	117.7%	123.0%	120.3%	4.5%
NAPHTHALENE	BDL	BDL	0.80	0.84	0.85	105.6%	106.4%	106.0%	0.8%
HEXACHLOROBUTADIENE	BDL	BDL	0.80	0.84	0.80	104.7%	99.7%	102.2%	4.8%
4-CHLORO-3-METHYLPHENOL #	BDL	BDL	1.60	1.40	1.40	87.5%	87.3%	87.4%	0.2%
HEXACHLOROCYCLOPENTADIENE	BDL	BDL	0.80	0.28	0.26	35.5%	32.1%	33.8%	10.0%
2,4,6-TRICHLOROPHENOL	BDL	BDL	1.60	0.25	0.31	15.8% *	19.3% *	17.6% *	19.8%
2-CHLORONAPHTHALENE	BDL	BDL	0.80	0.89	0.87	111.1%	108.8%	109.9%	2.1%
DIMETHYL PHTHALATE	BDL	BDL	0.80	0.86	0.85	107.7%	106.3%	107.0%	1.2%
ACENAPHTHYLENE	BDL	BDL	0.80	0.93	0.94	115.7%	117.3%	116.5%	1.3%
ACENAPHTHENE #	BDL	BDL	0.80	0.85	0.85	106.3%	106.3%	106.3%	0.0%
2,4-DINITROPHENOL	BDL	BDL	1.60	0.03	0.00	1.7%	0.0% *	0.8%	200.0%*

= SW 846 SPIKE CMPD. ; BDL = Below Detection Limits ; NIS = Not in Spike Mix ; * = Out of QC Limits ; D = Detectable

QA/QC REPORT
SEMIVOLATILE SOIL
MATRIX SPIKE: 50000491
QC FILE ID: 50000497

PARAMETER	BLANK RESULTS MG/KG	SAMPLE RESULTS MG/KG	SPIKE LEVEL RESULTS MG/KG	SPIKE I RESULTS MG/KG	SPIKE II RESULTS MG/KG	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
4-NITROPHENOL #	BDL	BDL	1.60	0.03	0.03	2.0%	1.9%	2.0%	6.3%
2,6-DINITROTOLUENE	BDL	BDL	0.80	0.80	0.80	100.0%	100.4%	100.2%	0.4%
2,4-DINITROTOLUENE #	BDL	BDL	0.80	0.79	0.78	99.1%	97.7%	98.4%	1.4%
DIETHYL PHTHALATE	BDL	BDL	0.80	0.97	0.96	120.9% *	119.6% *	120.2% *	1.1%
4-CHLOROPHENYL PHENYL ETHER	BDL	BDL	0.80	0.91	0.92	113.7%	114.5%	114.1%	0.7%
FLUORENE	BDL	BDL	0.80	0.96	0.97	119.4%	121.5% *	120.4%	1.7%
4,6-DINITRO-2-METHYLPHENOL	BDL	BDL	1.60	0.14	0.15	8.9%	9.6%	9.3%	7.0%
N-NITROSO-DI-PHENYLAMINE	BDL	BDL	0.80	0.39	0.42	49.1%	52.4%	50.8%	6.6%
4-BROMOPHENYL PHENYL ETHER	BDL	BDL	0.80	0.92	0.95	114.5%	118.5%	116.5%	3.5%
HEXACHLOROBENZENE	BDL	BDL	0.80	0.95	0.96	118.8%	119.6%	119.2%	0.7%
PENTACHLOROPHENOL #	BDL	BDL	1.60	0.16	0.16	10.0% *	10.2% *	10.1% *	2.7%
PHENANTHRENE	BDL	BDL	0.80	0.96	0.86	119.4%	107.3%	113.4%	10.7%
ANTHRACENE	BDL	BDL	0.80	0.90	0.92	112.1%	115.0%	113.6%	2.6%
DI-N-BUTYL PHTHALATE	BDL	BDL	0.80	0.86	0.93	107.3%	116.2%	111.8%	7.9%
PYRENE #	BDL	BDL	0.80	0.90	0.90	112.7%	112.7%	112.7%	0.0%
BENZO(A)ANTHRACENE	BDL	BDL	0.80	0.82	0.84	103.1%	105.0%	104.1%	1.8%
CHRYSENE	BDL	BDL	0.80	0.95	0.90	118.2%	112.7%	115.4%	4.7%
BIS(2-ETHYLHEXYL) PHTHALATE	BDL	BDL	0.80	1.04	1.05	130.6%	130.7%	130.6%	0.1%
DI-N-OCTYL PHTHALATE	BDL	BDL	0.80	1.12	0.93	139.9%	116.2%	128.0%	18.5%
BENZO(B)FLUORANTHENE	BDL	BDL	0.80	0.91	0.93	113.9%	116.1%	115.0%	1.9%
BENZO(K)FLUORANTHENE	BDL	BDL	0.80	1.17	1.23	145.9%	154.1%	150.0%	5.5%
BENZO(A)PYRENE	BDL	BDL	0.80	0.99	1.01	124.3%	126.1%	125.2%	1.4%
INDENO(1,2,3-cd)PYRENE	BDL	BDL	0.80	1.06	0.78	131.9%	97.5%	114.7%	30.0%
DIBENZO(A,H)ANTHRACENE	BDL	BDL	0.80	0.99	1.01	123.9%	126.2%	125.1%	1.9%
BENZO(G,H,I)PERYLENE	BDL	BDL	0.80	1.09	1.12	136.0%	140.5%	138.2%	3.3%

= SW 846 SPIKE CMPD. ; BDL = Below Detection Limits ; NIS = Not in Spike Mix ; * = Out of QC Limits ; D = Detectable

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918) 251-2515
FAX (918) 251-0008

Client:	Sequoyah Fuels Corp.
Client Project:	SF03-129
Lab Number:	20030367
Date Reported:	6/2/03
Date Received:	5/13/03
Page Number:	1 of 4

Analytical Report

	Method	Result	Units	DL	Prep Date	Analysis Date	Analyst
Lab ID:	**20030367-01**						
Client ID:	**MISC (Raffinate Filtrate)**						
Date Sampled:	**5/6/03 1:00:00 PM**						
Matrix:	**Water**						
	Radiochemical Analyses						
Ra-226	SM 7500 Ra (M)	50.0 +/- 4.16	pCi/l	1.72	5/19/03	5/20/03	SD
Th-230	LANL ER200 M	145 +/- 6.95	mg/l	3.76	5/19/03	5/19/03	RE
Uranium	ASTM D 5174M	774	ug/l	1	5/19/03	5/20/03	RE
	Inorganics Analyses						
Ammonia (N)	EPA 350.3	2880	mg/l	32	5/16/03	5/16/03	RT
Nitrate (N)	SM4500-NO3-D	3060	mg/l	15		5/13/03 5:45:00 PM	RT
Phosphorus	SM4500-PO4-D	0.20	mg/l	0.1		5/19/03	RT
	Metals Analyses						
Aluminum	EPA 6010B	10.3	mg/l	0.220	5/19/03	5/20/03	RE
Antimony	EPA 6010B	BDL	mg/l	0.008	5/19/03	5/19/03	RE
Arsenic	EPA 6010B	0.686	mg/l	0.007	5/19/03	5/19/03	RE
Barium	EPA 6010B	0.671	mg/l	0.007	5/19/03	5/19/03	RE
Beryllium	EPA 6010B	BDL	mg/l	0.002	5/19/03	5/19/03	RE
Cadmium	EPA 6010B	0.141	mg/l	0.044	5/19/03	5/20/03	RE
Calcium	EPA 6010B	1260	mg/l	4.04	5/19/03	5/20/03	RE
Chromium	EPA 6010B	BDL	mg/l	0.010	5/19/03	5/19/03	RE
Cobalt	EPA 6010B	0.464	mg/l	0.110	5/19/03	5/20/03	RE
Copper	EPA 6010B	0.326	mg/l	0.004	5/19/03	5/19/03	RE
Iron	EPA 6010B	3.57	mg/l	0.066	5/19/03	5/20/03	RE
Lead	EPA 6010B	BDL	mg/l	0.008	5/19/03	5/19/03	RE
Lithium	EPA 6010B	0.820	mg/l	0.022	5/19/03	5/20/03	RE
Magnesium	EPA 6010B	265	mg/l	0.707	5/19/03	5/20/03	RE
Manganese	EPA 6010B	50.6	mg/l	0.303	5/19/03	5/20/03	RE
Mercury	EPA 7470A	BDL	mg/l	0.0004	5/20/03	5/20/03	RE
Molybdenum	EPA 6010B	42.0	mg/l	0.033	5/19/03	5/20/03	RE
Nickel	EPA 6010B	2.69	mg/l	0.006	5/19/03	5/20/03	RE
Potassium	EPA 6010B	3740	mg/l	3.74	5/19/03	5/20/03	RE
Selenium	EPA 6010B	0.182	mg/l	0.006	5/19/03	5/19/03	RE
Silver	EPA 6010B	BDL	mg/l	0.007	5/19/03	5/19/03	RE

BDL = Below Detection Limit

Outreach Laboratory
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Broken Arrow, OK 74012
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Client:	Sequoyah Fuels Corp.
Client Project:	SF03-129
Lab Number:	20030367
Date Reported:	6/2/03
Date Received:	5/13/03
Page Number:	2 of 4

Analytical Report

	Method	Result	Units	DL	Prep Date	Analysis Date	Analyst
Sodium	EPA 6010B	1260	mg/l	101	5/19/03	5/20/03	RE
Strontium	EPA 6010B	2.63	mg/l	0.017	5/19/03	5/19/03	RE
Thallium	EPA 6010B	0.030	mg/l	0.030	5/19/03	5/19/03	RE
Vanadium	EPA 6010B	1.00	mg/l	0.008	5/19/03	5/19/03	RE
Zinc	EPA 6010B	4.50	mg/l	0.055	5/19/03	5/20/03	RE

BDL - Below Detection Limit

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918) 251-2515
FAX (918) 251-0008

Client:	Sequoyah Fuels Corp.
Client Project:	SF03-129
Lab Number:	20030367
Date Reported:	6/2/03
Date Received:	5/13/03
Page Number:	3 of 4

QC Report

Parameter	Blank	LCS	LCSD		DUP	MS	MSD		Date
		%REC	%REC	RPD	RPD	%REC	%REC	RPD	
Aluminum	BDL	97.0				124.0	142.0	7.6	5/20/03
Ammonia (N)	BDL	95.1			1.6	100.0	104.0	1.9	5/16/03
Antimony	BDL	100.0				83.0	78.0	5.6	5/19/03
Arsenic	BDL	94.0				79.0	75.0	5.2	5/19/03
Barium	BDL	101.0				83.0	81.0	2.3	5/19/03
Beryllium	BDL	103.0				84.0	80.0	5.5	5/19/03
Cadium	BDL	98.0				96.0	102.0	5.9	5/20/03
Calcium	BDL	90.0			DO	DO	8.8		5/20/03
Chromium	BDL	101.0				75.0	79.0	5.5	5/19/03
Cobalt	BDL	94.0				94.0	100.0	6.0	5/20/03
Copper	BDL	105.0				87.0	84.0	4.0	5/19/03
Iron	BDL	101.0				92.0	103.0	6.8	5/20/03
Lead	BDL	101.0				82.0	77.0	5.5	5/19/03
Lithium	BDL	103.0				97.0	97.0	0.5	5/20/03
Magnesium	BDL	92.0				102.0	114.0	5.9	5/20/03
Manganese	BDL	96.0				90.0	94.0	4.1	5/20/03
Mercury	BDL	100.0				90.0	106.0	16.3	5/1/03
Mercury	BDL	103.0				95.7	93.3	2.6	5/20/03
Molybdenum	BDL	99.0				91.0	99.0	7.5	5/20/03
Nickel	BDL	96.0				83.0	86.0	3.4	5/20/03
Nitrate (N)	BDL	100.0			0.4	111.0	110.0	0.9	5/13/03
Phosphorus	BDL	107.0			4.0	112.0	110.0	0.7	5/19/03
Potassium	BDL	91.0				97.0	99.0	1.5	5/20/03
Ra-226	0+/0	102.0	98.7	3.2	NC	45.6	47.0	3.0	5/20/03
Selenium	BDL	95.0				79.0	76.0	3.9	5/19/03
Silver	BDL	92.0				75.0	74.0	2.0	5/19/03
Sodium	BDl	99.0				114.0	110.0	1.4	5/20/03
Strontium	BDL	105.0				86.0	83.0	3.4	5/19/03
Th-228	0.0+/-0.0	105.0	94.0	10.8	135.0	72.0			5/19/03
Th-230	0.0+/-0.0	113.0	107.0	5.6	NC	122.0			5/19/03
Th-232	0.0+/-0.0	118.0	102.0	14.5	35.0	93.1			5/19/03
Thallium	BDL	103.0				85.0	81.0	5.4	5/19/03
Uranium	BDL	87.6	94.1	7.2	7.9	48.8	86.5	45.9	5/15/03

BDL = Below Detection Limit

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Client:	Sequoyah Fuels Corp.
Client Project:	SF03-129
Lab Number:	20030367
Date Reported:	6/2/03
Date Received:	5/13/03
Page Number:	4 of 4

Vanadium	BDL	100.0	73.0	70.0	4.2	5/19/03
Zinc	BDL	105.0	99.0	102.0	2.4	5/20/03

QA Approval: ______

Lab Approval: ______

BDL = Below Detection Limit

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918) 251-2515
FAX (918) 251-0008

Client:	Sequoyah Fuels
Client Project:	SF03-278
Lab Number:	20030809
Date Reported:	11/24/03
Date Received:	10/21/03
Page Number:	1A of 7

CASE NARRATIVE

Three misc samples were received on 10/21/03. The samples were received in good condition and analyzed for metals, uranium, thorium-230, ra-226 and percent moisture. On the original report issued 11/21/03, the uranium result for sample number one "Press Only" was incorrectly reported. The sample had been diluted and reran and converted in ug/g. That correct result is included on the attached amended report. The missing QC on many of the metals is due to insufficient sample volume.

If you have any questions, please call us at 918-251-2515.

Quality Assurance Officer

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918) 251-2515
FAX (918) 251-0008

Client:	Sequoyah Fuels Corp.
Client Project:	SF03-278 MISC RAFF-FILTER
Lab Number:	20030809
Date Reported:	11/24/2003
Date Received:	10/21/03
Page Number:	1 of 6

Analytical Report

Lab ID: 20030809-01
Client ID: Press Only
Date Sampled: 5/1/2003
Matrix: Other

	Method	Result	Units	DL	Prep Date	Analysis Date	Analyst
Radiochemical Analyses							
Ra-226	SM 7500 Ra (M)	219 +/- 8.08	pCi/g	1.42	11/12/2003	11/14/2003	RE
Th-230	LANL ER200 M	16200 +/- 112	pCi/g	7.013	11/10/2003	11/12/2003	RE
Uranium	ASTM D 5174M	19400	ug/g	1	11/5/2003	11/13/2003	RE
Inorganics Analyses							
Percent Moisture	LOD	57.4	%			10/24/2003	CS
Phosphorus	EPA 6010B	19600	mg/kg	144	10/27/2003	11/20/2003	CS
Metals Analyses							
Aluminum	EPA 6010B	160000	mg/kg	530	10/27/2003	10/30/2003	CS
Antimony	EPA 6010B	78.4	mg/kg	5.88	10/27/2003	10/28/2003	CS
Arsenic	EPA 6010B	3030	mg/kg	320	10/27/2003	10/30/2003	CS
Barium	EPA 6010B	4150	mg/kg	267	10/27/2003	10/30/2003	CS
Beryllium	EPA 6010B	18.7	mg/kg	2.67	10/27/2003	10/28/2003	CS
Cadmium	EPA 6010B	BDL	mg/kg	267	10/27/2003	10/30/2003	CS
Calcium	EPA 6010B	114000	mg/kg	641	10/27/2003	10/30/2003	CS
Chromium	EPA 6010B	605	mg/kg	13.9	10/27/2003	11/18/2003	CS
Cobalt	EPA 6010B	133	mg/kg	3.74	10/27/2003	10/28/2003	CS
Copper	EPA 6010B	2360	mg/kg	3.74	10/27/2003	10/28/2003	CS
Iron	EPA 6010B	164000	mg/kg	374	10/27/2003	10/31/2003	CS
Lead	EPA 6010B	1010	mg/kg	6.41	10/27/2003	11/4/2003	CS
Lithium	EPA 6010B	BDL	mg/kg	2.67	10/27/2003	10/28/2003	CS
Magnesium	EPA 6010B	7190	mg/kg	21.4	10/27/2003	10/30/2003	CS
Manganese	EPA 6010B	1930	mg/kg	267	10/27/2003	10/30/2003	CS
Mercury	EPA 7471A	1.41	mg/kg	0.08	11/11/2003	11/11/2003	CS
Molybdenum	EPA 6010B	10700	mg/kg	18.7	10/27/2003	11/18/2003	CS
Nickel	EPA 6010B	1660	mg/kg	320	10/27/2003	10/30/2003	CS
Potassium	EPA 6010B	7740	mg/kg	2560	10/27/2003	10/30/2003	CS
Selenium	EPA 6010B	348	mg/kg	5.34	10/27/2003	10/28/2003	CS
Silver	EPA 6010B	BDL	mg/kg	90.8	10/27/2003	10/30/2003	CS
Sodium	EPA 6010B	7480	mg/kg	908	10/27/2003	10/30/2003	CS
Strontium	EPA 6010B	1210	mg/kg	6.41	10/27/2003	10/28/2003	CS
Thallium	EPA 6010B	5860	mg/kg	2510	10/27/2003	10/30/2003	CS
Vanadium	EPA 6010B	BDL	mg/kg	1.60	10/27/2003	10/28/2003	CS

BDL = Below Detection Limit

Outreach Laboratory
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Broken Arrow, OK 74012
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FAX (918) 251-0008

Client:	Sequoyah Fuels Corp.
Client Project:	SF03-278 MISC RAFF-FILTER
Lab Number:	20030809
Date Reported:	11/24/2003
Date Received:	10/21/03
Page Number:	2 of 6

Analytical Report

	Method	Result	Units	DL	Prep Date	Analysis Date	Analyst
Zinc	EPA 6010B	BDL	mg/kg	751	10/27/2003	10/30/2003	CS

Lab ID: 20030809-02
Client ID: Press Only Leachate
Date Sampled: 5/1/2003
Matrix: Water

	Method	Result	Units	DL	Prep Date	Analysis Date	Analyst
Radiochemical Analyses							
Ra-226	SM 7500 Ra (M)	7.06 +/- 8.15	pCi/l	15.3	11/12/2003	11/14/2003	RE
Th-230	LANL ER200 M	80.1 +/- 41.7	pCi/l	70.4	11/10/2003	11/12/2003	RE
Uranium	ASTM D 5174M	4.67	ug/l	1	11/5/2003	11/13/2003	RE
Inorganics Analyses							
Phosphorus	EPA 6010B	BDL	mg/l	0.54	11/4/2003	11/20/2003	CS
Metals Analyses							
Aluminum	EPA 6010B	28.8	mg/l	0.200	11/4/2003	11/14/2003	CS
Antimony	EPA 6010B	BDL	mg/l	0.220	11/4/2003	11/14/2003	CS
Arsenic	EPA 6010B	0.461	mg/l	0.120	11/4/2003	11/14/2003	CS
Barium	EPA 6010B	BDL	mg/l	0.100	11/4/2003	11/14/2003	CS
Beryllium	EPA 6010B	BDL	mg/l	0.100	11/4/2003	11/14/2003	CS
Cadmium	EPA 6010B	BDL	mg/l	0.100	11/4/2003	11/14/2003	CS
Calcium	EPA 6010B	925	mg/l	2.40	11/4/2003	11/19/2003	CS
Chromium	EPA 6010B	BDL	mg/l	0.240	11/4/2003	11/14/2003	CS
Cobalt	EPA 6010B	0.711	mg/l	0.080	11/4/2003	11/14/2003	CS
Copper	EPA 6010B	0.745	mg/l	0.080	11/4/2003	11/14/2003	CS
Iron	EPA 6010B	BDL	mg/l	0.140	11/4/2003	11/14/2003	CS
Lead	EPA 6010B	BDL	mg/l	1.36	11/4/2003	11/14/2003	CS
Lithium	EPA 6010B	0.464	mg/l	0.100	11/4/2003	11/14/2003	CS
Magnesium	EPA 6010B	152	mg/l	0.200	11/4/2003	11/18/2003	CS
Manganese	EPA 6010B	66.2	mg/l	0.100	11/4/2003	11/14/2003	CS
Mercury	EPA 7471A	BDL	mg/l	0.0002	10/30/2003	11/11/2003	CS
Molybdenum	EPA 6010B	13.3	mg/l	0.180	11/4/2003	11/14/2003	CS
Nickel	EPA 6010B	8.86	mg/l	0.120	11/4/2003	11/14/2003	CS
Potassium	EPA 6010B	203	mg/l	0.960	11/4/2003	11/14/2003	CS
Selenium	EPA 6010B	BDL	mg/l	0.200	11/4/2003	11/14/2003	CS
Silver	EPA 6010B	BDL	mg/l	0.320	11/4/2003	11/18/2003	CS
Sodium	EPA 6010B	346	mg/l	1.70	11/4/2003	11/18/2003	CS
Strontium	EPA 6010B	2.81	mg/l	0.240	11/4/2003	11/14/2003	CS
Thallium	EPA 6010B	0.418	mg/l	0.220	11/4/2003	11/14/2003	CS

BDL = Below Detection Limit

Outreach Laboratory
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Broken Arrow, OK 74012
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FAX (918) 251-0008

Client:	Sequoyah Fuels Corp.
Client Project:	SF03-278 MISC RAFF-FILTER
Lab Number:	20030809
Date Reported:	11/24/2003
Date Received:	10/21/03
Page Number:	3 of 6

Analytical Report

	Method	Result	Units	DL	Prep Date	Analysis Date	Analyst
Vanadium	EPA 6010B	0.320	mg/l	0.160	11/4/2003	11/14/2003	CS
Zinc	EPA 6010B	2.92	mg/l	1.04	11/4/2003	11/18/2003	CS

Lab ID: **20030809-03**
Client ID: **Press, Sludge, Portland Leachate**
Date Sampled: **5/1/2003**
Matrix: **Water**

	Method	Result	Units	DL	Prep Date	Analysis Date	Analyst
Radiochemical Analyses							
Ra-226	SM 7500 Ra (M)	9.96 +/- 2.27	pCi/l	1.80	11/12/2003	11/14/2003	RE
Th-230	LANL ER200 M	44.9 +/- 12.2	pCi/l	15.0	11/10/2003	11/12/2003	RE
Uranium	ASTM D 5174M	4.53	ug/l	1	11/5/2003	11/13/2003	RE
Inorganics Analyses							
Phosphorus	EPA 6010B	BDL	mg/l	0.54	11/4/2003	11/20/2003	CS
Metals Analyses							
Aluminum	EPA 6010B	7.82	mg/l	0.200	11/4/2003	11/14/2003	CS
Antimony	EPA 6010B	BDL	mg/l	0.220	11/4/2003	11/14/2003	CS
Arsenic	EPA 6010B	0.170	mg/l	0.120	11/4/2003	11/14/2003	CS
Barium	EPA 6010B	0.282	mg/l	0.100	11/4/2003	11/14/2003	CS
Beryllium	EPA 6010B	BDL	mg/l	0.100	11/4/2003	11/14/2003	CS
Cadmium	EPA 6010B	BDL	mg/l	0.100	11/4/2003	11/14/2003	CS
Calcium	EPA 6010B	[illegible]57	mg/l	1.20	11/4/2003	11/18/2003	CS
Chromium	EPA 6010B	BDL	mg/l	0.240	11/4/2003	11/14/2003	CS
Cobalt	EPA 6010B	BDL	mg/l	0.080	11/4/2003	11/14/2003	CS
Copper	EPA 6010B	2.64	mg/l	0.080	11/4/2003	11/14/2003	CS
Iron	EPA 6010B	BDL	mg/l	0.140	11/4/2003	11/14/2003	CS
Lead	EPA 6010B	BDL	mg/l	1.36	11/4/2003	11/14/2003	CS
Lithium	EPA 6010B	BDL	mg/l	[illegible]00	11/4/2003	11/14/2003	CS
Magnesium	EPA 6010B	BDL	mg/l	0.1[illegible]	11/4/2003	11/14/2003	CS
Manganese	EPA 6010B	BDL	mg/l	0.100	11/4/2003	11/14/2003	CS
Mercury	EPA 7471A	BDL	mg/l	0.0002	[illegible]0/2003	11/11/2003	CS
Molybdenum	EPA 6010B	35.5	mg/l	0.180	11/4/2003	11/14/2003	CS
Nickel	EPA 6010B	0.207	mg/l	0.120	11/4/2003	11/14/2003	CS
Potassium	EPA 6010B	211	mg/l	0.960	11/4/2003	11/14/2003	CS
Selenium	EPA 6010B	BDL	mg/l	0.200	11/4/2003	[illegible]4/2003	CS
Silver	EPA 6010B	BDL	mg/l	0.320	11/4/2003	11/1[illegible]03	CS
Sodium	EPA 6010B	199	mg/l	0.680	11/4/2003	11/18/2003	CS
Strontium	EPA 6010B	4.21	mg/l	0.240	11/4/2003	11/14/2003	[illegible]

BDL = Below Detection Limit

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918) 251-2515
FAX (918) 251-0008

Client:	Sequoyah Fuels Corp.
Client Project:	SF03-278 MISC RAFF-FILTER
Lab Number:	20030809
Date Reported:	11/24/2003
Date Received:	10/21/03
Page Number:	6 of 6

QC Report

Parameter	Blank	LCS %REC	LCSD %REC	LCSD RPD	DUP RPD	MS %REC	MSD %REC	MSD RPD	Date
Antimony	BDL	118.0				82.0	72.0	13.5	10/28/2003
Arsenic	BDL	97.0				84.0	85.0	1.6	10/28/2003
Barium	BDL	97.0				86.0	89.0	3.8	10/28/2003
Beryllium	BDL	101.0				87.0	91.0	4.5	10/28/2003
Cadmium	BDL	101.0				DO	DO		10/28/2003
Calcium	BDL	102.0				DO	DO		10/28/2003
Cobalt	BDL	110.0				86.0	74.0	14.3	10/28/2003
Copper	BDL	100.0				86.0	77.0	10.8	10/28/2003
Manganese	0.527	100.0				108.0	101.0	6.6	10/28/2003
Mercury	BDL	94.0				96.0	104.0	8.0	11/11/2003
Nickel	BDL	103.0				88.0	77.0	13.0	10/28/2003
Percent Moisture					100.0				10/24/2003
Potassium	BDL	106.0				DO	DO		10/28/2003
Ra-226	0+/-0	158.0							11/14/2003
Selenium	1.48	93.0				88.0	92.0	4.5	10/28/2003
Sodium	142	119.0				DO	DO		10/28/2003
Strontium	BDL	96.0				89.0	94.0	5.0	10/28/2003
Th-230	0+/-0.2	92.8							11/12/2003
Thallium	5.34	92.0				DO	DO		10/28/2003
Zinc	BDL	105.0				DO	DO		10/30/2003

QA Approval: ____________

Lab Approval: ____________

BDL = Below Detection Limit

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918) 251-2515
FAX (918) 251-0008

March 13, 2006

Scott Munson
Sequoyah Fuels Corp.
Hwy 10 & I-40
Gore, OK 74435

PROJECT: SF05-~~324~~ 338 ICM
OUTREACH LAB ID: 20050975

Dear Mr. Munson:

Please find enclosed the analytical report for your samples received in our laboratory on December 02, 2005 for the above captioned project. Eight soil samples were received in good condition and analyzed for Uranium, Ra-226 and Isotopic Thorium, (added per client request on 02/07/06).

The samples analyzed for isotopic thorium were acid digested and diluted to a known volume. Aliquots were taken from the digestate and analyzed for Th232, Th230 and Th228. The Th230 activity was very high. This resulted in a very small sample size being used for the analysis.

All Quality Control for the requested analyses is reported on the analytical report. The method blank, laboratory control standard and matrix spikes and spike duplicates for all analyses were within method control limits.

These samples will be returned to you.

Thank you for choosing Outreach Laboratory and if you have any questions, please call us at 918-251-2515.

Laboratory Director

ODEQ ID #9517
NRC ODEQ LIC. #27522-01

ACCREDITED IN ACCORDANCE WITH nelac
CERT. ID #OK001

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918) 251-2515
FAX (918) 251-0008

Client:	Sequoyah Fuels Corp.
Client Project: SF050338	Raffinate Dewatering
Lab Number:	20050975
Date Reported:	3/13/06
Date Received:	12/2/05
Page Number:	1 of 3

Analytical Report

	Method	Result	Units	DL	Prep Date	Analysis Date	Analyst
Lab ID:	**20050975-01**						
Client ID:	**SD 256**						
Date Sampled:	**11/14/05 10:50:00 AM**						
Matrix:	**Soil**						
	Radiochemical Analyses						
Ra-226	SM 7500 Ra (M)	135 +/- 3.96	pCi/g	0.605	12/20/05	12/27/05	SD
Th-228	LANL ER 200 M	730 +/- 253	pCi/g	153	3/6/06	3/7/06	RE
Th-230	LANL ER 200 M	48100 +/- 2060	pCi/g	1770	3/6/06	3/7/06	RE
Th-232	LANL ER 200 M	2170 +/- 411	pCi/g	75	3/6/06	3/7/06	RE
Uranium	ASTM D 5174M	10100	ug/g	0.980	12/21/05	1/12/06	MD
Lab ID:	**20050975-02**						
Client ID:	**SD 257**						
Date Sampled:	**11/14/05 11:20:00 AM**						
Matrix:	**Soil**						
	Radiochemical Analyses						
Ra-226	SM 7500 Ra (M)	248 +/- 5.90	pCi/g	0.546	12/20/05	12/27/05	SD
Th-228	LANL ER 200 M	565 +/- 213	pCi/g	108	3/6/06	3/7/06	RE
Th-230	LANL ER 200 M	56600 +/- 2160	pCi/g	1720	3/6/06	3/7/06	RE
Th-232	LANL ER 200 M	2050 +/- 390	pCi/g	82	3/6/06	3/7/06	RE
Uranium	ASTM D 5174M	10400	ug/g	1.00	12/21/05	1/12/06	MD
Lab ID:	**20050975-03**						
Client ID:	**SD 258**						
Date Sampled:	**11/14/05 11:30:00 AM**						
Matrix:	**Soil**						
	Radiochemical Analyses						
Ra-226	SM 7500 Ra (M)	176 +/- 5.09	pCi/g	0.888	12/20/05	12/27/05	SD
Th-228	LANL ER 200 M	452 +/- 203	pCi/g	140	3/6/06	3/7/06	RE
Th-230	LANL ER 200 M	43900 +/- 1970	pCi/g	1740	3/6/06	3/7/06	RE
Th-232	LANL ER 200 M	1060 +/- 287	pCi/g	68	3/6/06	3/7/06	RE
Uranium	ASTM D 5174M	8090	ug/g	0.952	12/21/05	1/12/06	MD
Lab ID:	**20050975-04**						
Client ID:	**SD 259**						
Date Sampled:	**11/14/05 11:40:00 AM**						
Matrix:	**Soil**						
	Radiochemical Analyses						
Ra-226	SM 7500 Ra (M)	332 +/- 6.75	pCi/g	0.551	12/20/05	12/27/05	SD
Th-228	LANL ER 200 M	761 +/- 260	pCi/g	121	3/6/06	3/7/06	RE
Th-230	LANL ER 200 M	70100 +/- 2520	pCi/g	1840	3/6/06	3/7/06	RE

BDL = Below Detection Limit

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918) 251-2515
FAX (918) 251-0008

Client:	Sequoyah Fuels Corp.
Client Project:	Raffinate Dewatering
Lab Number:	20050975
Date Reported:	3/13/06
Date Received:	12/2/05
Page Number:	2 of 3

Analytical Report

	Method	Result	Units	DL	Prep Date	Analysis Date	Analyst
Th-232	LANL ER 200 M	2360 +/- 443	pCi/g	73	3/6/06	3/7/06	RE
Uranium	ASTM D 5174M	8750	ug/g	0.990	12/21/05	1/12/06	MD

Lab ID: **20050975-05**
Client ID: **SD 260**
Date Sampled: **11/14/05 1:20:00 PM**
Matrix: **Soil**

Radiochemical Analyses

	Method	Result	Units	DL	Prep Date	Analysis Date	Analyst
Ra-226	SM 7500 Ra (M)	266 +/- 5.71	pCi/g	0.567	12/20/05	12/27/05	SD
Th-228	LANL ER 200 M	450 +/- 192	pCi/g	119	3/6/06	3/7/06	RE
Th-230	LANL ER 200 M	44500 +/- 1900	pCi/g	1580	3/6/06	3/7/06	RE
Th-232	LANL ER 200 M	2120 +/- 393	pCi/g	90	3/6/06	3/7/06	RE
Uranium	ASTM D 5174M	7080	ug/g	0.833	12/21/05	1/12/06	MD

Lab ID: **20050975-06**
Client ID: **SD 261**
Date Sampled: **11/14/05 1:30:00 PM**
Matrix: **Soil**

Radiochemical Analyses

	Method	Result	Units	DL	Prep Date	Analysis Date	Analyst
Ra-226	SM 7500 Ra (M)	367 +/- 6.55	pCi/g	0.601	12/20/05	12/27/05	SD
Th-228	LANL ER 200 M	1080 +/- 268	pCi/g	100	3/6/06	3/7/06	RE
Th-230	LANL ER 200 M	61800 +/- 2070	pCi/g	1460	3/6/06	3/7/06	RE
Th-232	LANL ER 200 M	2800 +/- 424	pCi/g	87	3/6/06	3/7/06	RE
Uranium	ASTM D 5174M	7730	ug/g	0.806	12/21/05	1/12/06	MD

Lab ID: **20050975-07**
Client ID: **SD 262**
Date Sampled: **11/14/05 1:35:00 PM**
Matrix: **Soil**

Radiochemical Analyses

	Method	Result	Units	DL	Prep Date	Analysis Date	Analyst
Ra-226	SM 7500 Ra (M)	180 +/- 4.27	pCi/g	0.617	12/20/05	12/28/05	SD
Th-228	LANL ER 200 M	1110 +/- 332	pCi/g	175	3/6/06	3/7/06	RE
Th-230	LANL ER 200 M	74400 +/- 2700	pCi/g	1840	3/6/06	3/7/06	RE
Th-232	LANL ER 200 M	4990 +/- 671	pCi/g	72	3/6/06	3/7/06	RE
Uranium	ASTM D 5174M	8070	ug/g	0.909	12/21/05	1/12/06	MD

Lab ID: **20050975-08**
Client ID: **SD 263**
Date Sampled: **11/14/05 1:45:00 PM**
Matrix: **Soil**

Radiochemical Analyses

BDL = Below Detection Limit

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918) 251-2515
FAX (918) 251-0008

Client:	Sequoyah Fuels Corp.
Client Project:	Raffinate Dewatering
Lab Number:	20050975
Date Reported:	3/13/06
Date Received:	12/2/05
Page Number:	3 of 3

Analytical Report

	Method	Result	Units	DL	Prep Date	Analysis Date	Analyst
Ra-226	SM 7500 Ra (M)	166 +/- 4.84	pCi/g	0.663	12/20/05	12/28/05	SD
Th-228	LANL ER 200 M	449 +/- 210	pCi/g	144	3/6/06	3/7/06	RE
Th-230	LANL ER 200 M	46200 +/- 2090	pCi/g	1790	3/6/06	3/7/06	RE
Th-232	LANL ER 200 M	1700 +/- 376	pCi/g	66	3/6/06	3/7/06	RE
Uranium	ASTM D 5174M	8060	ug/g	0.935	12/21/05	1/12/06	MD

QC Report

Parameter	Blank	LCS	LCSD		DUP	MS	MSD		Date
		%REC	%REC	RPD	RPD	%REC	%REC	RPD	
Ra-226	0+/-0	122.0	112.0	8.8	23.9	109.0	122.0	11.5	12/26/05
Th-230	0+/-0.1	141.0	101.0	32.4	NC	133.0	120.0	6.1	2/10/06
Th-232	0.1+/-0	119.0	95.9	21.2	NC	107.0	103.0	0.3	2/10/06
Uranium	BDL	87.4	87.9	0.6	3.2	104.0	108.0	3.4	12/30/05

Lab Approval: [signature]

BDL = Below Detection Limit

State of New Jersey

JON S. CORZINE
Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Office of Quality Assurance
401 East State Street, 2nd Floor, P.O. Box 424
Trenton, New Jersey 08625
Telephone: (609) 292-3950
Facsimile: (609) 777-1774

Mark Mauriello
Acting Commissioner

August 3, 2009

Donna Eidson
Outreach Laboratory
311 N. Aspen Avenue
Broken Arrow, OK 74012

Dear Ms. Eidson:

Re: Corrected ACPL
Laboratory Certification ID# OK001

A corrected Fiscal Year 2010 Annual Certified Parameter List (ACPL) that reflects the current status of your facility is enclosed. If there are any discrepancies, please contact your Laboratory Certification Officer to verify information and make arrangements for a new ACPL.

As always, we are available to discuss any comments or questions. Please do not hesitate to contact your laboratory certification officer or me.

Sincerely,

Joseph F. Aiello, Chief

New Jersey Department of Environmental Protection

National Environmental Laboratory Accreditation Program

ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS

Effective as of 07/01/2009 until 06/30/2010

Laboratory Name: OUTREACH LABORATORY Laboratory Number: OK001 Activity ID: NLC090001
311 N ASPEN
BROKEN ARROW, OK 74012

Category: SDW07 -- Radiochem.: Radioactivity / Radionuclide

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SDW07.01000	DW	Proportional or Scintillation	[EPA 900.0]	Gross - alpha-beta
Certified	Yes	NJ	SDW07.01001	DW	48-Hour Rapid Gross Alpha Test	[OTHER N. J. A. C. 7:18-6]	Gross - alpha (incl. radium & U excl. radon)
Certified	Yes	NJ	SDW07.03000	DW	Gamma Spectrometry - Radiochemistry	[EPA 901.0]	Cesium 134/137
Certified	Yes	NJ	SDW07.03100	DW	Gamma Spectrometry	[EPA 901.1]	Gamma emitters
Certified	Yes	NJ	SDW07.03900	DW	Radiochemical	[SM 7500-Ra B]	Radium - 226
Certified	Yes	NJ	SDW07.04100	DW	Precipitation	[EPA 904.0]	Radium - 228
Certified	Yes	NJ	SDW07.05000	DW	Precipitation	[SM 7500 -Ra B]	Radium - total
Certified	Yes	NJ	SDW07.06010	DW	Strontium 90	[EPA 905.0]	Strontium - 90
Certified	Yes	NJ	SDW07.07000	DW	Distillation/Liquid Scintillation	[EPA 906.0]	Tritium
Certified	Yes	NJ	SDW07.08200	DW	Laser Phosphorimetry	[ASTM D5174-91]	Uranium

Category: SDW08 -- Radon in Drinking Water

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SDW08.01000	DW	Liquid Scintillation	[SM 7500-Rn]	Radon

Category: SHW02 -- Characteristics of Hazardous Waste

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW02.06950	NPW	TCLP, Toxicity Procedure, Shaker	[SW-846 1311]	Semivolatile organics

Category: SHW04 -- Inorganic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW04.01500	NPW	Acid Digestion/Aqueous Samples, ICP, FLAA	[SW-846 3010A, Rev. 1, 7/92]	Metals, Total

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

New Jersey Department of Environmental Protection

National Environmental Laboratory Accreditation Program

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Laboratory Name: OUTREACH LABORATORY Laboratory Number: OK001 Activity ID: NLC090001
311 N ASPEN
BROKEN ARROW, OK 74012

Category: SHW05 – Organic Parameters, Prep. / Screening

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW05.01000	NPW	Separatory Funnel Extraction	[SW-846 3510C, Rev. 3, 12/96]	Semivolatile organics
Certified	Yes	NJ	SHW05.07000	NPW	Purge & Trap Aqueous	[SW-846 5030B, Rev. 2, 12/96]	Volatile organics

Category: SHW06 – Organic Parameters, Chromatography

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW06.12005	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Alachlor
Applied	No	NJ	SHW06.12010	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Aldrin
Applied	No	NJ	SHW06.12020	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Alpha BHC
Applied	No	NJ	SHW06.12030	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Beta BHC
Applied	No	NJ	SHW06.12040	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Delta BHC
Certified	Yes	NJ	SHW06.12050	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Lindane (gamma BHC)
Certified	Yes	NJ	SHW06.12060	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Chlordane (technical)
Applied	No	NJ	SHW06.12070	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Chlordane (alpha)
Applied	No	NJ	SHW06.12080	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Chlordane (gamma)
Applied	No	NJ	SHW06.12090	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	DDD (4,4'-)
Applied	No	NJ	SHW06.12100	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	DDE (4,4'-)
Applied	No	NJ	SHW06.12110	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	DDT (4,4'-)
Applied	No	NJ	SHW06.12120	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Dieldrin
Applied	No	NJ	SHW06.12130	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Endosulfan I
Applied	No	NJ	SHW06.12140	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Endosulfan II
Applied	No	NJ	SHW06.12150	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Endosulfan sulfate
Certified	Yes	NJ	SHW06.12160	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Endrin
Applied	No	NJ	SHW06.12170	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Endrin aldehyde
Applied	No	NJ	SHW06.12180	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Endrin ketone
Certified	Yes	NJ	SHW06.12190	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Heptachlor
Applied	No	NJ	SHW06.12200	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Heptachlor epoxide
Certified	Yes	NJ	SHW06.12210	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Methoxychlor
Certified	Yes	NJ	SHW06.12220	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A, Rev. 1, 12/96]	Toxaphene
Certified	Yes	NJ	SHW06.13110	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB 1016

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New Jersey Department of Environmental Protection

National Environmental Laboratory Accreditation Program

ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS

Effective as of 07/01/2009 until 06/30/2010

Laboratory Name: OUTREACH LABORATORY Laboratory Number: OK001 Activity ID: NLC090001
311 N ASPEN
BROKEN ARROW, OK 74012

Category: SHW06 – Organic Parameters, Chromatography

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW06.13120	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB 1221
Certified	Yes	NJ	SHW06.13130	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB 1232
Certified	Yes	NJ	SHW06.13140	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB 1242
Certified	Yes	NJ	SHW06.13150	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB 1248
Certified	Yes	NJ	SHW06.13160	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB 1254
Certified	Yes	NJ	SHW06.13170	NPW	GC, Extraction, ECD or HECD, Capillary	[SW-846 8082, Rev. 0, 12/96]	PCB 1260
Certified	Yes	NJ	SHW06.23040	NPW	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev 1, 9/96]	D (2,4-)
Certified	Yes	NJ	SHW06.23060	NPW	GC, Extraction, ECD, Capillary	[SW-846 8151A, Rev 1, 9/96]	TP (2,4,5-) (Silvex)

Category: SHW07 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW07.04010	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Benzene
Applied	No	NJ	SHW07.04011	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Bromobenzene
Applied	No	NJ	SHW07.04012	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Butyl benzene (n-)
Applied	No	NJ	SHW07.04013	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Sec-butylbenzene
Applied	No	NJ	SHW07.04014	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Tert-butylbenzene
Certified	Yes	NJ	SHW07.04020	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Chlorobenzene
Applied	No	NJ	SHW07.04022	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Chlorotoluene (2-)
Applied	No	NJ	SHW07.04023	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Chlorotoluene (4-)
Applied	No	NJ	SHW07.04030	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichlorobenzene (1,2-)
Applied	No	NJ	SHW07.04040	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichlorobenzene (1,3-)
Certified	Yes	NJ	SHW07.04050	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichlorobenzene (1,4-)
Applied	No	NJ	SHW07.04060	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Ethylbenzene
Applied	No	NJ	SHW07.04065	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Isopropylbenzene
Applied	No	NJ	SHW07.04067	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Propylbenzene (n-)
Applied	No	NJ	SHW07.04070	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Toluene
Applied	No	NJ	SHW07.04071	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Isopropyltoluene (4-)
Applied	No	NJ	SHW07.04072	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Trichlorobenzene (1,2,3-)
Applied	No	NJ	SHW07.04073	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Trimethylbenzene (1,2,4-)

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

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Laboratory Name: OUTREACH LABORATORY Laboratory Number: OK001 Activity ID: NLC090001
311 N ASPEN
BROKEN ARROW, OK 74012

Category: SHW07 -- Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW07.04074	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Trimethylbenzene (1,3,5-)
Applied	No	NJ	SHW07.04075	NPW	GC/MS, P&T, or Direct Injection, Capillary	[SW-846 8260C]	Trimethylbenzene (1,2,3-)
Applied	No	NJ	SHW07.04080	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Xylenes (total)
Applied	No	NJ	SHW07.04081	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Xylene (m-)
Applied	No	NJ	SHW07.04082	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Xylene (o-)
Applied	No	NJ	SHW07.04089	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Bromochloromethane
Applied	No	NJ	SHW07.04090	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Bromodichloromethane
Applied	No	NJ	SHW07.04095	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Bromoethane
Applied	No	NJ	SHW07.04100	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Bromoform
Certified	Yes	NJ	SHW07.04120	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Carbon tetrachloride
Applied	No	NJ	SHW07.04130	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Chloroethane
Applied	No	NJ	SHW07.04140	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Chloroethyl vinyl ether (2-)
Certified	Yes	NJ	SHW07.04150	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Chloroform
Applied	No	NJ	SHW07.04160	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Chloromethane
Applied	No	NJ	SHW07.04165	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Diethyl ether (Ethyl ether)
Applied	No	NJ	SHW07.04170	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichloropropene (trans-1,3-)
Applied	No	NJ	SHW07.04180	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dibromochloromethane
Applied	No	NJ	SHW07.04185	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dibromoethane (1,2-) (EDB)
Applied	No	NJ	SHW07.04186	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dibromomethane
Applied	No	NJ	SHW07.04187	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dibromo-3-chloropropane (1,2-)
Applied	No	NJ	SHW07.04190	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichlorodifluoromethane
Applied	No	NJ	SHW07.04200	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichloroethane (1,1-)
Certified	Yes	NJ	SHW07.04210	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichloroethane (1,2-)
Certified	Yes	NJ	SHW07.04220	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Dichloroethene (1,1-)
Applied	No	NJ	SHW07.04230	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichloroethene (trans-1,2-)
Applied	No	NJ	SHW07.04235	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichloroethene (cis-1,2-)
Applied	No	NJ	SHW07.04240	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichloropropane (1,2-)
Applied	No	NJ	SHW07.04241	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichloropropane (1,3-)
Applied	No	NJ	SHW07.04242	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichloropropane (2,2-)
Applied	No	NJ	SHW07.04249	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichloropropene (1,1-)
Applied	No	NJ	SHW07.04250	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichloropropene (cis-1,3-)
Applied	No	NJ	SHW07.04270	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Tetrachloroethane (1,1,2,2-)

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Laboratory Name: OUTREACH LABORATORY Laboratory Number: OK001 Activity ID: NLC090001
311 N ASPEN
BROKEN ARROW, OK 74012

Category: SHW07 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW07.04280	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Tetrachloroethene
Applied	No	NJ	SHW07.04290	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Trichloroethane (1,1,1-)
Applied	No	NJ	SHW07.04300	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Trichloroethane (1,1,2-)
Certified	Yes	NJ	SHW07.04310	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Trichloroethene
Applied	No	NJ	SHW07.04320	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Trichlorofluoromethane
Applied	No	NJ	SHW07.04322	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Trichloro (1,1,2-) trifluoroethane (1,2,2-)
Applied	No	NJ	SHW07.04325	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Trichloropropane (1,2,3-)
Applied	No	NJ	SHW07.04327	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Vinyl acetate
Certified	Yes	NJ	SHW07.04330	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Vinyl chloride
Applied	No	NJ	SHW07.04340	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Acetone
Applied	No	NJ	SHW07.04350	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Carbon disulfide
Certified	Yes	NJ	SHW07.04360	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Butanone (2-)
Applied	No	NJ	SHW07.04365	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Ethyl acetate
Applied	No	NJ	SHW07.04370	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Hexanone (2-)
Applied	No	NJ	SHW07.04378	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	N-Nitroso-di-n-butylamine
Applied	No	NJ	SHW07.04380	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Pentanone (4-methyl-2-)
Applied	No	NJ	SHW07.04390	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Methyl tert-butyl ether
Certified	Yes	NJ	SHW07.04500	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Hexachlorobutadiene (1,3-)
Certified	Yes	NJ	SHW07.04530	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Hexachloroethane
Applied	No	NJ	SHW07.04540	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Naphthalene
Applied	No	NJ	SHW07.04550	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Styrene
Applied	No	NJ	SHW07.04560	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Tetrachloroethane (1,1,1,2-)
Applied	No	NJ	SHW07.04570	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Trichlorobenzene (1,2,4-)
Certified	Yes	NJ	SHW07.04580	NPW	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B, Rev. 2, 12/96]	Nitrobenzene
Applied	No	NJ	SHW07.04595	NPW	GC/MS, P & T, Capillary Column		Gasoline range organic
Applied	No	NJ	SHW07.05006	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	N-Nitroso-di-n-propylamine
Applied	No	NJ	SHW07.05010	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	N-Nitrosodiphenylamine
Applied	No	NJ	SHW07.05030	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Carbazole
Applied	No	NJ	SHW07.05038	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Benzidine
Applied	No	NJ	SHW07.05040	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dichlorobenzidine (3,3'-)
Applied	No	NJ	SHW07.05048	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Aniline
Applied	No	NJ	SHW07.05050	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Chloraniline (4-)

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New Jersey Department of Environmental Protection
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Laboratory Name: OUTREACH LABORATORY Laboratory Number: OK001 Activity ID: NLC090001
311 N ASPEN
BROKEN ARROW, OK 74012

Category: SHW07 -- Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW07.05060	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Nitroaniline (2-)
Applied	No	NJ	SHW07.05062	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Nitroaniline (3-)
Applied	No	NJ	SHW07.05063	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Nitroaniline (4-)
Applied	No	NJ	SHW07.05070	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Chloronaphthalene (2-)
Certified	Yes	NJ	SHW07.05080	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Hexachlorobenzene
Applied	No	NJ	SHW07.05090	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Hexachlorobutadiene (1,3-)
Applied	No	NJ	SHW07.05100	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Hexachlorocyclopentadiene
Applied	No	NJ	SHW07.05110	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Hexachloroethane
Applied	No	NJ	SHW07.05115	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Hexachloropropene
Applied	No	NJ	SHW07.05120	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Trichlorobenzene (1,2,4-)
Applied	No	NJ	SHW07.05130	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Bis (2-chloroethoxy) methane
Applied	No	NJ	SHW07.05132	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Bis (2-chloroethyl) ether
Applied	No	NJ	SHW07.05140	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Bis (2-chloroisopropyl) ether
Applied	No	NJ	SHW07.05150	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Chlorophenyl-phenyl ether (4-)
Applied	No	NJ	SHW07.05160	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Bromophenyl-phenyl ether (4-)
Certified	Yes	NJ	SHW07.05170	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dinitrotoluene (2,4-)
Applied	No	NJ	SHW07.05180	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dinitrotoluene (2,6-)
Applied	No	NJ	SHW07.05190	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Isophorone
Applied	No	NJ	SHW07.05200	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Nitrobenzene
Applied	No	NJ	SHW07.05210	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Butyl benzyl phthalate
Applied	No	NJ	SHW07.05220	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Bis (2-ethylhexyl) phthalate
Applied	No	NJ	SHW07.05230	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Diethyl phthalate
Applied	No	NJ	SHW07.05240	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dimethyl phthalate
Applied	No	NJ	SHW07.05250	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Di-n-butyl phthalate
Applied	No	NJ	SHW07.05260	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Di-n-octyl phthalate
Applied	No	NJ	SHW07.05270	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Acenaphthene
Applied	No	NJ	SHW07.05280	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Anthracene
Applied	No	NJ	SHW07.05290	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Acenaphthylene
Applied	No	NJ	SHW07.05300	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Benzo(a)anthracene
Applied	No	NJ	SHW07.05310	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Benzo(a)pyrene
Applied	No	NJ	SHW07.05320	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Benzo(b)fluoranthene
Applied	No	NJ	SHW07.05330	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Benzo(ghi)perylene

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Laboratory Name: OUTREACH LABORATORY Laboratory Number: OK001 Activity ID: NLC090001
311 N ASPEN
BROKEN ARROW, OK 74012

Category: SHW07 -- Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW07.05340	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Benzo(k)fluoranthene
Applied	No	NJ	SHW07.05350	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Chrysene
Applied	No	NJ	SHW07.05360	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dibenzo(a,h)anthracene
Applied	No	NJ	SHW07.05370	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Fluoranthene
Applied	No	NJ	SHW07.05380	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Fluorene
Applied	No	NJ	SHW07.05390	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Indeno(1,2,3-cd)pyrene
Applied	No	NJ	SHW07.05410	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Naphthalene
Applied	No	NJ	SHW07.05420	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Phenanthrene
Applied	No	NJ	SHW07.05430	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Pyrene
Applied	No	NJ	SHW07.05440	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Methyl phenol (4-chloro-3-)
Applied	No	NJ	SHW07.05450	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Chlorophenol (2-)
Applied	No	NJ	SHW07.05460	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dichlorophenol (2,4-)
Applied	No	NJ	SHW07.05470	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dimethylphenol (2,4-)
Applied	No	NJ	SHW07.05480	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dinitrophenol (2,4-)
Applied	No	NJ	SHW07.05490	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dinitrophenol (2-methyl-4,6-)
Certified	Yes	NJ	SHW07.05500	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Methylphenol (2-)
Certified	Yes	NJ	SHW07.05510	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Methylphenol (4-)
Applied	No	NJ	SHW07.05520	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Nitrophenol (2-)
Applied	No	NJ	SHW07.05530	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Nitrophenol (4-)
Certified	Yes	NJ	SHW07.05540	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Pentachlorophenol
Applied	No	NJ	SHW07.05550	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Phenol
Certified	Yes	NJ	SHW07.05560	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Trichlorophenol (2,4,5-)
Certified	Yes	NJ	SHW07.05570	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Trichlorophenol (2,4,6-)
Certified	Yes	NJ	SHW07.05590	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Methylphenol (3-)
Applied	No	NJ	SHW07.05600	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dibenzofuran
Applied	No	NJ	SHW07.05691	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dichlorobenzene (1,2-)
Applied	No	NJ	SHW07.05692	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dichlorobenzene (1,3-)
Applied	No	NJ	SHW07.05700	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dichlorobenzene (1,4-)
Applied	No	NJ	SHW07.05710	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Benzoic acid
Applied	No	NJ	SHW07.05725	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270D]	Decane (n-)
Applied	No	NJ	SHW07.05730	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270D]	Octadecane (n-)
Applied	No	NJ	SHW07.05745	NPW	GC/MS, Extract or Dir Inj, Capillary		Petroleum Organics

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311 N ASPEN
BROKEN ARROW, OK 74012

Category: SHW07 -- Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW07.05750	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C, Rev. 3, 12/96]	Pyridine
Applied	No	NJ	SHW07.05780	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Alpha BHC
Applied	No	NJ	SHW07.05790	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Beta BHC
Applied	No	NJ	SHW07.05800	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Delta BHC
Applied	No	NJ	SHW07.05810	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Lindane (gamma BHC)
Applied	No	NJ	SHW07.05820	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Chlordane (technical)
Applied	No	NJ	SHW07.05830	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Chlordane (alpha)
Applied	No	NJ	SHW07.05840	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Chlordane (gamma)
Applied	No	NJ	SHW07.05850	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	DDD (4,4'-)
Applied	No	NJ	SHW07.05860	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	DDE (4,4'-)
Applied	No	NJ	SHW07.05870	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	DDT (4,4'-)
Applied	No	NJ	SHW07.05880	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dieldrin
Applied	No	NJ	SHW07.05890	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Endosulfan I
Applied	No	NJ	SHW07.05900	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Endosulfan II
Applied	No	NJ	SHW07.05910	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Endosulfan sulfate
Applied	No	NJ	SHW07.05920	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Endrin
Applied	No	NJ	SHW07.05930	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Endrin aldehyde
Applied	No	NJ	SHW07.05940	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Endrin ketone
Applied	No	NJ	SHW07.05950	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Heptachlor
Applied	No	NJ	SHW07.05960	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Heptachlor epoxide
Applied	No	NJ	SHW07.05970	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Methoxychlor
Applied	No	NJ	SHW07.05980	NPW	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Toxaphene

Category: WPP09 -- Radiochem.: Radioactivity / Radionuclide

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	WPP09.01000	NPW	Proportional or Scintillation	[EPA 900]	Gross - alpha
Certified	Yes	NJ	WPP09.03000	NPW	Proportional Counter	[EPA 900]	Gross - beta
Certified	Yes	NJ	WPP09.03100	NPW	Gamma Spectrometry	[EPA 901.1]	Cesium 134/137
Certified	Yes	NJ	WPP09.03200	NPW	Gamma Spectrometry	[EPA 901.1]	Cobalt 60

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311 N ASPEN
BROKEN ARROW, OK 74012

Category: WPP09 -- Radiochem.: Radioactivity / Radionuclide

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	WPP09.03300	NPW	Gamma Spectrometry	[EPA 901.1]	Zinc 65
Certified	Yes	NJ	WPP09.05000	NPW	Precipitation	[SM 7500-Ra B]	Radium - total
Certified	Yes	NJ	WPP09.06000	NPW	Radiochemical	[SM 7500-Ra B]	Radium - 226
Certified	Yes	NJ	WPP09.06020	NPW	Co-Precipitation / Beta Counting	[EPA 904.0]	Radium - 228
Certified	Yes	NJ	WPP09.07000	NPW	Gamma Spectrometry	[EPA 901.1]	Photon Emitters
Certified	Yes	NJ	WPP09.08100	NPW	Precipitation / Beta Counting	[EPA 905.0]	Strontium - 90
Certified	Yes	NJ	WPP09.09000	NPW	Co-Precipitation / Alpha Counting	[USER DEFINED ASTM D5174-91]	Uranium
Certified	No	NJ	WPP09.09010	NPW	Isotopic Analysis / Alpha Spectrometry	[ASTM D 3972-97]	Uranium
Certified	Yes	NJ	WPP09.10000	NPW	Distillation/Liquid Scintillation	[EPA 906.0]	Tritium
Applied	No	NJ	WPP09.11000	NPW	Radiochemical / Alpha Counting	[EPA 907.0]	Plutonium

Category: WPP10 -- Radon in Wastewater

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	WPP10.01000	NPW	Liquid Scintillation	[USER DEFINED SM 7500]	Radon

Category: SHW02 -- Characteristics of Hazardous Waste

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW02.01000	NPW, SCM	Pensky Martens	[SW-846 1010, Rev. 0, 9/86]	Ignitability
Certified	Yes	NJ	SHW02.03000	NPW, SCM	Aqueous Waste, Potentiometric	[SW-846 9040B, Rev. 2, 1/95]	Corrosivity - pH waste, >20% water
Certified	Yes	NJ	SHW02.06900	NPW, SCM	TCLP, Toxicity Procedure, ZHE	[SW-846 1311, Rev. 0, 7/92]	Volatile organics
Certified	Yes	NJ	SHW02.07000	NPW, SCM	TCLP, Toxicity Procedure, Shaker	[SW-846 1311]	Metals
Certified	Yes	NJ	SHW02.08000	NPW, SCM	Synthetic PPT Leachate Procedure	[SW-846 1312, Rev. 0, 9/94]	Metals - organics

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311 N ASPEN
BROKEN ARROW, OK 74012

Category: SHW04 -- Inorganic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW04.05000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2, 12/96]	Aluminum
Certified	Yes	NJ	SHW04.06500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2, 12/96]	Antimony
Certified	Yes	NJ	SHW04.09000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Arsenic
Certified	Yes	NJ	SHW04.11500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Barium
Certified	Yes	NJ	SHW04.13500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Beryllium
Certified	Yes	NJ	SHW04.15100	NPW, SCM	ICP	[SW-846 6010B, Rev. 2, 12/96]	Boron
Certified	Yes	NJ	SHW04.15500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Cadmium
Certified	Yes	NJ	SHW04.17500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Calcium
Certified	Yes	NJ	SHW04.18500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Chromium
Certified	Yes	NJ	SHW04.22500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Cobalt
Certified	Yes	NJ	SHW04.24500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Copper
Certified	Yes	NJ	SHW04.26000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Iron
Certified	Yes	NJ	SHW04.27500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Lead
Certified	Yes	NJ	SHW04.30500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2, 12/96]	Magnesium
Certified	Yes	NJ	SHW04.31500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2, 12/96]	Manganese
Certified	Yes	NJ	SHW04.33000	NPW, SCM	AA, Manual Cold Vapor	[SW-846 7470A, Rev. 1, 9/94]	Mercury - liquid waste
Certified	Yes	NJ	SHW04.34000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Molybdenum
Certified	Yes	NJ	SHW04.35500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2, 12/96]	Nickel
Certified	Yes	NJ	SHW04.38000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Potassium
Certified	Yes	NJ	SHW04.39000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Selenium
Certified	Yes	NJ	SHW04.41000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Silver
Certified	Yes	NJ	SHW04.43000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Sodium
Certified	Yes	NJ	SHW04.44000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Strontium
Certified	Yes	NJ	SHW04.45000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Thallium
Certified	Yes	NJ	SHW04.47500	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Vanadium
Certified	Yes	NJ	SHW04.49000	NPW, SCM	ICP	[SW-846 6010B, Rev. 2 12/96]	Zinc

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS

Effective as of 07/01/2009 until 06/30/2010

Laboratory Name: OUTREACH LABORATORY Laboratory Number: OK001 Activity ID: NLC090001
311 N ASPEN
BROKEN ARROW, OK 74012

Category: SHW09 -- Miscellaneous Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW09.02000	NPW, SCM	Distillation	[SW-846 9010B, Rev. 2, 12/96]	Cyanide
Applied	No	NJ	SHW09.04100	NPW, SCM	Titrimetric/Manual Spectrophotometric	[SW-846 9014, Rev. 0, 12/96]	Cyanide
Certified	Yes	NJ	SHW09.10000	NPW, SCM	Water Extraction, Distillation	[SW-846 9031]	Sulfides - extractable

Category: SHW04 -- Inorganic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW04.03000	SCM	Acid Digestion, Soil Sediment & Sludge	[SW-846 3050B, Rev. 2, 12/96]	Metals
Certified	Yes	NJ	SHW04.21000	SCM	Colorimetric	[SW-846 7196A, Rev. 1, 7/92]	Chromium (VI)
Certified	Yes	NJ	SHW04.33500	SCM	AA, Manual Cold Vapor	[SW-846 7471A, Rev. 1, 9/94]	Mercury - solid waste

Category: SHW05 -- Organic Parameters, Prep. / Screening

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW05.12000	SCM	Cleanup-Florisil	[SW-846 3620B, Rev. 2, 12/96]	Semivolatile organics
Certified	Yes	NJ	SHW05.17000	SCM	Cleanup-Sulfuric Acid/KMnO4	[SW-846 3665A, Rev. 1, 12/96]	Semivolatile organics

Category: SHW09 -- Miscellaneous Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW09.60000	SCM	Proportional Counter	[SW-846 9310, Rev. 0, 9/86]	Gross - alpha-beta
Certified	Yes	NJ	SHW09.60105	SCM	Radon Emanation	[DOE Ra-04]	Radium - 226
Certified	Yes	NJ	SHW09.60106	SCM	Precipitation	[SM 7500-Ra B]	Radium - 226
Certified	Yes	NJ	SHW09.60110	SCM	Precipitation	[SW-846 9320, Rev. 0, 9/86]	Radium - 228
Certified	Yes	NJ	SHW09.60120	SCM	Gamma Spectrometry	[DOE 4.5.2.3]	Cesium 134/137
Certified	Yes	NJ	SHW09.60130	SCM	Gamma Spectrometry	[DOE 4.5.2.3]	Cobalt 60
Certified	Yes	NJ	SHW09.60140	SCM	Gamma Spectrometry	[DOE 4.5.2.3]	Zinc 65
Certified	Yes	NJ	SHW09.60150	SCM	Gamma Spectrometry	[DOE 4.5.2.3]	Barium 133

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

New Jersey Department of Environmental Protection
National Environmental Laboratory Accreditation Program
ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS
Effective as of 07/01/2009 until 06/30/2010

Laboratory Name: OUTREACH LABORATORY Laboratory Number: OK001 Activity ID: NLC090001
311 N ASPEN
BROKEN ARROW, OK 74012

Category: SHW09 – Miscellaneous Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW09.60200	SCM	Precipitation / Beta Counting	[DOE Sr-01, Sr-02]	Strontium - 89, 90
Certified	Yes	NJ	SHW09.60300	SCM	Fluorometry	[ASTM D 5174]	Uranium
Certified	Yes	NJ	SHW09.60310	SCM	Alpha Spectrometry	[DOE U-02]	Uranium
Certified	Yes	NJ	SHW09.60400	SCM	Alpha Spectrometry	[DOE 4.5.5]	Thorium

Joseph F. Aiello, Chief

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

O K L A H O M A
DEPARTMENT OF ENVIRONMENTAL QUALITY
...for a clean, attractive, prosperous Oklahoma

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program

State Laboratory ID: 9517; D9923
EPA ID: OK00922

Certificate #: 2009-105

Outreach Laboratory

311 North Aspen
Broken Arrow, OK 74012

has been certified for the examination of environmental samples for fields of testing listed on the laboratory's Scope of Accreditation.

Continued certification is contingent upon successful on-going compliance with OAC 252:301 which was promulgated and adopted pursuant to the Oklahoma Environmental Quality Code (Code), 27AO.S. § 2-4-101 *et seq.* Specific methods and analytes certified are cited on the laboratory's Scope of Accreditation.

The Scope of Accreditation and reports of on-site inspections are on file at the Oklahoma DEQ, Customer Services Division, Laboratory Accreditation Program, 707 N Robinson, P.O. Box 1677, Oklahoma City, Oklahoma 73101-1677, (405) 702-1000, www.deq.state.ok.us. Clients and customers may verify with this agency the laboratory's certification status for particular methods and analytes.

ISSUED: 9/1/2009

EXPIRES: 8/31/2010

Judith A. Duncan, Customer Services Division Director

David Caldwell, Laboratory Accreditation Program

This certificate is valid proof of certification only when associated with its Scope of Accreditation.

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
...for a clean, attractive, prosperous Oklahoma

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program

Scope of Accreditation

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918)-251-2515

Laboratory ID: OK00922
State Lab ID: 9517
Safe Drinking Water Program

Certificate Number: 2009-105
Date of Issue: 9/1/2009
Expiration Date: 8/31/2010

Has demonstrated the capability to analyze environmental samples in accordance with Oklahoma Rules 252:301 and is hereby granted CERTIFICATION FOR:

Barium 133	EPA 901.1	DW	Suspended
Cesium-134	EPA 901.1	DW	Good Standing
Cesium-137	EPA 901.1	DW	Good Standing
Cobalt 60	EPA 901.1	DW	Good Standing
Gross alpha-beta	EPA 900	DW	Good Standing
Gross gamma	EPA 901.1	DW	Good Standing
Lead-210	EPA 901.1	DW	Good Standing
Manganese-54	EPA 901.1	DW	Good Standing
Radioactive iodine (iodine-131)	EPA 901.1	DW	Good Standing
Radium-226	X SM 18/19thED 7500-Ra B	DW	Good Standing
Radium-228	EPA 904	DW	Good Standing
Strontium-89, 90	EPA 905	DW	Good Standing
Strontium-90	EPA 905	DW	Suspended
Tritium	EPA 906	DW	Good Standing
Uranium	ASTM D5174-97	DW	Good Standing
Zinc 65	EPA 901.1	DW	Good Standing

DW = Drinking Water; NPW = Non-Potable Water; S = Solids

This analyte list supercedes all previously issued.

David E Caldwell

Certification Officer

DISPLAY IN A PROMINENT POSITION

OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY
...for a clean, attractive, prosperous Oklahoma

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program
Scope of Accreditation

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918)-251-2515

Laboratory ID: OK00922
State Lab ID: 9517
Clean Water Program

Certificate Number: 2009-105
Date of Issue: 9/1/2009
Expiration Date: 8/31/2010

Has demonstrated the capability to analyze environmental samples in accordance with Oklahoma Rules 252:301 and is hereby granted CERTIFICATION FOR:

1,1,1,2-Tetrachloroethane	EPA 624	NPW	Good Standing
1,1,1,2-Tetrachloroethane	EPA 8260B_2_1996	S	Good Standing
1,1,1,2-Tetrachloroethane	EPA 8260B_2_1996	NPW	Good Standing
1,1,1-Trichloro-2-propanone	EPA 8260B_2_1996	NPW	Good Standing
1,1,1-Trichloro-2-propanone	EPA 8260B_2_1996	S	Good Standing
1,1,1-Trichloroethane	EPA 624	NPW	Good Standing
1,1,1-Trichloroethane	EPA 8260B_2_1996	S	Good Standing
1,1,1-Trichloroethane	EPA 8260B_2_1996	NPW	Good Standing
1,1,2,2-Tetrachloroethane	EPA 624	NPW	Good Standing
1,1,2,2-Tetrachloroethane	EPA 8260B_2_1996	NPW	Good Standing
1,1,2,2-Tetrachloroethane	EPA 8260B_2_1996	S	Good Standing
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 8260B_2_1996	NPW	Good Standing
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 8260B_2_1996	S	Good Standing
1,1,2-Trichloroethane	EPA 624	NPW	Good Standing
1,1,2-Trichloroethane	EPA 8260B_2_1996	S	Good Standing
1,1,2-Trichloroethane	EPA 8260B_2_1996	NPW	Good Standing
1,1-Dichloroethane	EPA 624	NPW	Good Standing
1,1-Dichloroethane	EPA 8260B_2_1996	S	Good Standing
1,1-Dichloroethane	EPA 8260B_2_1996	NPW	Good Standing
1,1-Dichloroethylene	EPA 624	NPW	Good Standing
1,1-Dichloroethylene	EPA 8260B_2_1996	NPW	Good Standing
1,1-Dichloroethylene	EPA 8260B_2_1996	S	Good Standing
1,1-Dichloropropene	EPA 8260B_2_1996	S	Good Standing
1,1-Dichloropropene	EPA 8260B_2_1996	NPW	Good Standing
1,2,3,4-Diepoxybutane	EPA 8260B_2_1996	NPW	Good Standing
1,2,3,4-Diepoxybutane	EPA 8260B_2_1996	S	Good Standing
1,2,3,4-Tetrachlorobenzene	EPA 8260B_2_1996	S	Good Standing
1,2,3,4-Tetrachlorobenzene	EPA 8260B_2_1996	NPW	Good Standing
1,2,3-Trichlorobenzene	EPA 624	NPW	Good Standing
1,2,3-Trichlorobenzene	EPA 8260B_2_1996	S	Good Standing
1,2,3-Trichlorobenzene	EPA 8260B_2_1996	NPW	Good Standing
1,2,3-Trichloropropane	EPA 8260B_2_1996	S	Good Standing
1,2,3-Trichloropropane	EPA 8260B_2_1996	NPW	Good Standing
1,2,4,5-Tetrachlorobenzene	EPA 8270B_(9/94)	NPW	Good Standing
1,2,4,5-Tetrachlorobenzene	EPA 8270B_(9/94)	S	Good Standing
1,2,4,5-Tetrachlorobenzene	EPA 8270C_3_1996	NPW	Good Standing
1,2,4-Trichlorobenzene	EPA 624	NPW	Good Standing
1,2,4-Trichlorobenzene	EPA 625	NPW	Good Standing
1,2,4-Trichlorobenzene	EPA 8260B_2_1996	S	Good Standing
1,2,4-Trichlorobenzene	EPA 8260B_2_1996	NPW	Good Standing
1,2,4-Trichlorobenzene	EPA 8270B_(9/94)	S	Good Standing
1,2,4-Trichlorobenzene	EPA 8270B_(9/94)	NPW	Good Standing
1,2,4-Trichlorobenzene	EPA 8270C_3_1996	S	Good Standing
1,2,4-Trichlorobenzene	EPA 8270C_3_1996	NPW	Good Standing
1,2,4-Trimethylbenzene	EPA 8260B_2_1996	NPW	Good Standing

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program

Scope of Accreditation

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
...for a clean, attractive, prosperous Oklahoma

Outreach Laboratory

311 North Aspen
Broken Arrow, OK 74012
(918)-251-2515

Laboratory ID: OK00922
State Lab ID: 9517
Clean Water Program

Certificate Number: 2009-105
Date of Issue: 9/1/2009
Expiration Date: 8/31/2010

Has demonstrated the capability to analyze environmental samples in accordance with Oklahoma Rules 252:301 and is hereby granted CERTIFICATION FOR:

1,2,4-Trimethylbenzene	EPA 8260B_2_1996	S	Good Standing
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260B_2_1996	S	Good Standing
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260B_2_1996	NPW	Good Standing
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8270B_(9/94)	NPW	Good Standing
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8270B_(9/94)	S	Good Standing
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8270C_3_1996	NPW	Good Standing
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8270C_3_1996	S	Good Standing
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 624	NPW	Good Standing
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8260B_2_1996	NPW	Good Standing
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8260B_2_1996	S	Good Standing
1,2-Dichlorobenzene	EPA 624	NPW	Good Standing
1,2-Dichlorobenzene	EPA 625	NPW	Good Standing
1,2-Dichlorobenzene	EPA 8260B_2_1996	S	Good Standing
1,2-Dichlorobenzene	EPA 8260B_2_1996	NPW	Good Standing
1,2-Dichlorobenzene	EPA 8270B_(9/94)	NPW	Good Standing
1,2-Dichlorobenzene	EPA 8270B_(9/94)	S	Good Standing
1,2-Dichlorobenzene	EPA 8270C_3_1996	S	Good Standing
1,2-Dichlorobenzene	EPA 8270C_3_1996	NPW	Good Standing
1,2-Dichloroethane	EPA 624	NPW	Good Standing
1,2-Dichloroethane	EPA 8260B_2_1996	S	Good Standing
1,2-Dichloroethane	EPA 8260B_2_1996	NPW	Good Standing
1,2-Dichloropropane	EPA 624	NPW	Good Standing
1,2-Dichloropropane	EPA 8260B_2_1996	NPW	Good Standing
1,2-Dichloropropane	EPA 8260B_2_1996	S	Good Standing
1,2-Dinitrobenzene	EPA 8270B_(9/94)	S	Good Standing
1,2-Dinitrobenzene	EPA 8270B_(9/94)	NPW	Good Standing
1,2-Dinitrobenzene	EPA 8270C_3_1996	NPW	Good Standing
1,2-Dinitrobenzene	EPA 8270C_3_1996	S	Good Standing
1,2-Diphenylhydrazine	EPA 625	NPW	Good Standing
1,2-Diphenylhydrazine	EPA 8270B_(9/94)	S	Good Standing
1,2-Diphenylhydrazine	EPA 8270B_(9/94)	NPW	Good Standing
1,2-Diphenylhydrazine	EPA 8270C_3_1996	NPW	Good Standing
1,2-Diphenylhydrazine	EPA 8270C_3_1996	S	Good Standing
1,3,5-Trimethylbenzene	EPA 8260B_2_1996	NPW	Good Standing
1,3,5-Trimethylbenzene	EPA 8260B_2_1996	S	Good Standing
1,3,5-Trinitrobenzene (1,3,5-TNB)	EPA 8270C_3_1996	NPW	Good Standing
1,3,5-Trinitrobenzene (1,3,5-TNB)	EPA 8270C_3_1996	S	Good Standing
1,3-Dichloro-2-propanol	EPA 8260B_2_1996	S	Good Standing
1,3-Dichloro-2-propanol	EPA 8260B_2_1996	NPW	Good Standing
1,3-Dichlorobenzene	EPA 624	NPW	Good Standing
1,3-Dichlorobenzene	EPA 625	NPW	Good Standing
1,3-Dichlorobenzene	EPA 8260B_2_1996	NPW	Good Standing
1,3-Dichlorobenzene	EPA 8260B_2_1996	S	Good Standing
1,3-Dichlorobenzene	EPA 8270B_(9/94)	NPW	Good Standing
1,3-Dichlorobenzene	EPA 8270B_(9/94)	S	Good Standing

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program

Scope of Accreditation

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
...for a clean, attractive, prosperous Oklahoma

Outreach Laboratory

311 North Aspen
Broken Arrow, OK 74012
(918)-251-2515

Laboratory ID: OK00922
State Lab ID: 9517
Clean Water Program

Certificate Number: 2009-105
Date of Issue: 9/1/2009
Expiration Date: 8/31/2010

Has demonstrated the capability to analyze environmental samples in accordance with Oklahoma Rules 252:301 and is hereby granted CERTIFICATION FOR:

1,3-Dichlorobenzene	EPA 8270C_3_1996	NPW	Good Standing
1,3-Dichlorobenzene	EPA 8270C_3_1996	S	Good Standing
1,3-Dichloropropane	EPA 8260B_2_1996	S	Good Standing
1,3-Dichloropropane	EPA 8260B_2_1996	NPW	Good Standing
1,3-Dinitrobenzene (1,3-DNB)	EPA 8270B_(9/94)	NPW	Good Standing
1,3-Dinitrobenzene (1,3-DNB)	EPA 8270B_(9/94)	S	Good Standing
1,3-Dinitrobenzene (1,3-DNB)	EPA 8270C_3_1996	S	Good Standing
1,3-Dinitrobenzene (1,3-DNB)	EPA 8270C_3_1996	NPW	Good Standing
1,4-Dichlorobenzene	EPA 624	NPW	Good Standing
1,4-Dichlorobenzene	EPA 625	NPW	Good Standing
1,4-Dichlorobenzene	EPA 8260B_2_1996	NPW	Good Standing
1,4-Dichlorobenzene	EPA 8260B_2_1996	S	Good Standing
1,4-Dichlorobenzene	EPA 8270B_(9/94)	NPW	Good Standing
1,4-Dichlorobenzene	EPA 8270B_(9/94)	S	Good Standing
1,4-Dichlorobenzene	EPA 8270C_3_1996	S	Good Standing
1,4-Dichlorobenzene	EPA 8270C_3_1996	NPW	Good Standing
1,4-Dinitrobenzene	EPA 8270B_(9/94)	NPW	Good Standing
1,4-Dinitrobenzene	EPA 8270B_(9/94)	S	Good Standing
1,4-Dinitrobenzene	EPA 8270C_3_1996	S	Good Standing
1,4-Dinitrobenzene	EPA 8270C_3_1996	NPW	Good Standing
1,4-Dioxane (1,4- Diethyleneoxide)	EPA 8260B_2_1996	NPW	Good Standing
1,4-Dioxane (1,4- Diethyleneoxide)	EPA 8260B_2_1996	S	Good Standing
1,4-Naphthoquinone	EPA 625	NPW	Good Standing
1,4-Naphthoquinone	EPA 8270B_(9/94)	NPW	Good Standing
1,4-Naphthoquinone	EPA 8270B_(9/94)	S	Good Standing
1,4-Naphthoquinone	EPA 8270C_3_1996	NPW	Good Standing
1,4-Naphthoquinone	EPA 8270C_3_1996	S	Good Standing
1,4-Phenylenediamine	EPA 8270B_(9/94)	S	Good Standing
1,4-Phenylenediamine	EPA 8270B_(9/94)	NPW	Good Standing
1,4-Phenylenediamine	EPA 8270C_3_1996	S	Good Standing
1,4-Phenylenediamine	EPA 8270C_3_1996	NPW	Good Standing
1-Acetyl-2-thiourea	EPA 8270B_(9/94)	S	Good Standing
1-Acetyl-2-thiourea	EPA 8270B_(9/94)	NPW	Good Standing
1-Acetyl-2-thiourea	EPA 8270C_3_1996	S	Good Standing
1-Acetyl-2-thiourea	EPA 8270C_3_1996	NPW	Good Standing
1-Chloronaphthalene	EPA 625	NPW	Good Standing
1-Chloronaphthalene	EPA 8270B_(9/94)	NPW	Good Standing
1-Chloronaphthalene	EPA 8270B_(9/94)	S	Good Standing
1-Chloronaphthalene	EPA 8270C_3_1996	S	Good Standing
1-Chloronaphthalene	EPA 8270C_3_1996	NPW	Good Standing
1-Naphthylamine	EPA 625	NPW	Good Standing
1-Naphthylamine	EPA 8270B_(9/94)	NPW	Good Standing
1-Naphthylamine	EPA 8270B_(9/94)	S	Good Standing
1-Naphthylamine	EPA 8270C_3_1996	S	Good Standing
1-Naphthylamine	EPA 8270C_3_1996	NPW	Good Standing

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program
Scope of Accreditation

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
...for a clean, attractive, prosperous Oklahoma

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918)-251-2515

Laboratory ID: OK00922
State Lab ID: 9517
Clean Water Program

Certificate Number: 2009-105
Date of Issue: 9/1/2009
Expiration Date: 8/31/2010

Has demonstrated the capability to analyze environmental samples in accordance with Oklahoma Rules 252:301 and is hereby granted CERTIFICATION FOR:

1-Propanol	EPA 8260B_2_1996	NPW	Good Standing
1-Propanol	EPA 8260B_2_1996	S	Good Standing
2,2-Dichloropropane	EPA 8260B_2_1996	NPW	Good Standing
2,2-Dichloropropane	EPA 8260B_2_1996	S	Good Standing
2,2-oxybis (1-chloropropane)	EPA 625	NPW	Good Standing
2,3,4,6-Tetrachlorophenol	EPA 8270B_(9/94)	NPW	Good Standing
2,3,4,6-Tetrachlorophenol	EPA 8270B_(9/94)	S	Good Standing
2,3,4,6-Tetrachlorophenol	EPA 8270C_3_1996	NPW	Good Standing
2,3,4,6-Tetrachlorophenol	EPA 8270C_3_1996	S	Good Standing
2,3,5-Trichlorophenol	EPA 625	NPW	Good Standing
2,3,5-Trichlorophenol	EPA 8270C_3_1996	S	Good Standing
2,3,5-Trichlorophenol	EPA 8270C_3_1996	NPW	Good Standing
2,3,6-Trichlorophenol	EPA 625	NPW	Good Standing
2,3,6-Trichlorophenol (4C)	EPA 625	NPW	Good Standing
2,4,5-Trichlorophenol	EPA 625	NPW	Good Standing
2,4,5-Trichlorophenol	EPA 8270B_(9/94)	S	Good Standing
2,4,5-Trichlorophenol	EPA 8270B_(9/94)	NPW	Good Standing
2,4,5-Trichlorophenol	EPA 8270C_3_1996	S	Good Standing
2,4,5-Trichlorophenol	EPA 8270C_3_1996	NPW	Good Standing
2,4,5-Trimethylaniline	EPA 8270C_3_1996	S	Good Standing
2,4,5-Trimethylaniline	EPA 8270C_3_1996	NPW	Good Standing
2,4,6-Trichlorophenol	EPA 625	NPW	Good Standing
2,4,6-Trichlorophenol	EPA 8270B_(9/94)	NPW	Good Standing
2,4,6-Trichlorophenol	EPA 8270B_(9/94)	S	Good Standing
2,4,6-Trichlorophenol	EPA 8270C_3_1996	S	Good Standing
2,4,6-Trichlorophenol	EPA 8270C_3_1996	NPW	Good Standing
2,4-D	EPA 8151A_(1/98)	S	Good Standing
2,4-D	EPA 8151A_(1/98)	NPW	Good Standing
2,4-Diaminotoluene	EPA 8270B_(9/94)	NPW	Good Standing
2,4-Diaminotoluene	EPA 8270B_(9/94)	S	Good Standing
2,4-Diaminotoluene	EPA 8270C_3_1996	S	Good Standing
2,4-Diaminotoluene	EPA 8270C_3_1996	NPW	Good Standing
2,4-Dichlorophenol	EPA 625	NPW	Good Standing
2,4-Dichlorophenol	EPA 8270B_(9/94)	NPW	Good Standing
2,4-Dichlorophenol	EPA 8270B_(9/94)	S	Good Standing
2,4-Dichlorophenol	EPA 8270C_3_1996	NPW	Good Standing
2,4-Dichlorophenol	EPA 8270C_3_1996	S	Good Standing
2,4-Dimethylphenol	EPA 625	NPW	Good Standing
2,4-Dimethylphenol	EPA 8270B_(9/94)	S	Good Standing
2,4-Dimethylphenol	EPA 8270B_(9/94)	NPW	Good Standing
2,4-Dimethylphenol	EPA 8270C_3_1996	NPW	Good Standing
2,4-Dimethylphenol	EPA 8270C_3_1996	S	Good Standing
2,4-Dinitrophenol	EPA 625	NPW	Good Standing
2,4-Dinitrophenol	EPA 8270B_(9/94)	S	Good Standing
2,4-Dinitrophenol	EPA 8270B_(9/94)	NPW	Good Standing

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
...for a clean, attractive, prosperous Oklahoma

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program

Scope of Accreditation

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918)-251-2515

Laboratory ID: OK00922
State Lab ID: 9517
Clean Water Program

Certificate Number: 2009-105
Date of Issue: 9/1/2009
Expiration Date: 8/31/2010

Has demonstrated the capability to analyze environmental samples in accordance with Oklahoma Rules 252:301 and is hereby granted CERTIFICATION FOR:

2,4-Dinitrophenol	EPA 8270C_3_1996	NPW	Good Standing
2,4-Dinitrophenol	EPA 8270C_3_1996	S	Good Standing
2,4-Dinitrotoluene (2,4-DNT)	EPA 625	NPW	Good Standing
2,4-Dinitrotoluene (2,4-DNT)	EPA 8270B_(9/94)	NPW	Good Standing
2,4-Dinitrotoluene (2,4-DNT)	EPA 8270B_(9/94)	S	Good Standing
2,4-Dinitrotoluene (2,4-DNT)	EPA 8270C_3_1996	S	Good Standing
2,4-Dinitrotoluene (2,4-DNT)	EPA 8270C_3_1996	NPW	Good Standing
2,6-Dichlorophenol	EPA 8270B_(9/94)	S	Good Standing
2,6-Dichlorophenol	EPA 8270B_(9/94)	NPW	Good Standing
2,6-Dichlorophenol	EPA 8270C_3_1996	S	Good Standing
2,6-Dichlorophenol	EPA 8270C_3_1996	NPW	Good Standing
2,6-Dinitrotoluene (2,6-DNT)	EPA 625	NPW	Good Standing
2,6-Dinitrotoluene (2,6-DNT)	EPA 8270B_(9/94)	S	Good Standing
2,6-Dinitrotoluene (2,6-DNT)	EPA 8270B_(9/94)	NPW	Good Standing
2,6-Dinitrotoluene (2,6-DNT)	EPA 8270C_3_1996	NPW	Good Standing
2,6-Dinitrotoluene (2,6-DNT)	EPA 8270C_3_1996	S	Good Standing
2-Acetylaminofluorene	EPA 8270B_(9/94)	NPW	Good Standing
2-Acetylaminofluorene	EPA 8270B_(9/94)	S	Good Standing
2-Acetylaminofluorene	EPA 8270C_3_1996	S	Good Standing
2-Acetylaminofluorene	EPA 8270C_3_1996	NPW	Good Standing
2-Aminoanthraquinone	EPA 8270B_(9/94)	S	Good Standing
2-Aminoanthraquinone	EPA 8270B_(9/94)	NPW	Good Standing
2-Aminoanthraquinone	EPA 8270C_3_1996	NPW	Good Standing
2-Aminoanthraquinone	EPA 8270C_3_1996	S	Good Standing
2-Butanone (Methyl ethyl ketone, MEK)	EPA 624	NPW	Good Standing
2-Butanone (Methyl ethyl ketone, MEK)	EPA 8260B_2_1996	NPW	Good Standing
2-Butanone (Methyl ethyl ketone, MEK)	EPA 8260B_2_1996	S	Good Standing
2-Chloro-1,3-butadiene (Chloroprene)	EPA 624	NPW	Good Standing
2-Chloroethanol	EPA 8260B_2_1996	NPW	Good Standing
2-Chloroethanol	EPA 8260B_2_1996	S	Good Standing
2-Chloroethyl vinyl ether	EPA 624	NPW	Good Standing
2-Chloroethyl vinyl ether	EPA 8260B_2_1996	NPW	Good Standing
2-Chloroethyl vinyl ether	EPA 8260B_2_1996	S	Good Standing
2-Chloronaphthalene	EPA 625	NPW	Good Standing
2-Chloronaphthalene	EPA 8270B_(9/94)	S	Good Standing
2-Chloronaphthalene	EPA 8270B_(9/94)	NPW	Good Standing
2-Chloronaphthalene	EPA 8270C_3_1996	S	Good Standing
2-Chloronaphthalene	EPA 8270C_3_1996	NPW	Good Standing
2-Chlorophenol	EPA 625	NPW	Good Standing
2-Chlorophenol	EPA 8270B_(9/94)	S	Good Standing
2-Chlorophenol	EPA 8270B_(9/94)	NPW	Good Standing
2-Chlorophenol	EPA 8270C_3_1996	NPW	Good Standing
2-Chlorophenol	EPA 8270C_3_1996	S	Good Standing
2-Chlorotoluene	EPA 8260B_2_1996	S	Good Standing
2-Chlorotoluene	EPA 8260B_2_1996	NPW	Good Standing

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
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Oklahoma Department of Environmental Quality
Laboratory Accreditation Program
Scope of Accreditation

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918)-251-2515

Laboratory ID: OK00922
State Lab ID: 9517
Clean Water Program

Certificate Number: 2009-105
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Expiration Date: 8/31/2010

Has demonstrated the capability to analyze environmental samples in accordance with Oklahoma Rules 252:301 and is hereby granted CERTIFICATION FOR:

2-Cyclohexyl-4,6-dinitrophenol	EPA 8270B_(9/94)	NPW	Good Standing
2-Cyclohexyl-4,6-dinitrophenol	EPA 8270B_(9/94)	S	Good Standing
2-Cyclohexyl-4,6-dinitrophenol	EPA 8270C_3_1996	NPW	Good Standing
2-Cyclohexyl-4,6-dinitrophenol	EPA 8270C_3_1996	S	Good Standing
2-Hexanone	EPA 8260B_2_1996	S	Good Standing
2-Hexanone	EPA 8260B_2_1996	NPW	Good Standing
2-Hydroxypropionitrile	EPA 8260B_2_1996	S	Good Standing
2-Hydroxypropionitrile	EPA 8260B_2_1996	NPW	Good Standing
2-Methyl-4,6-dinitrophenol	EPA 8270C_3_1996	S	Good Standing
2-Methyl-4,6-dinitrophenol	EPA 8270C_3_1996	NPW	Good Standing
2-Methylnaphthalene	EPA 8270B_(9/94)	NPW	Good Standing
2-Methylnaphthalene	EPA 8270B_(9/94)	S	Good Standing
2-Methylnaphthalene	EPA 8270C_3_1996	NPW	Good Standing
2-Methylnaphthalene	EPA 8270C_3_1996	S	Good Standing
2-Methylphenol (o-Cresol)	EPA 8270B_(9/94)	S	Good Standing
2-Methylphenol (o-Cresol)	EPA 8270B_(9/94)	NPW	Good Standing
2-Methylphenol (o-Cresol)	EPA 8270C_3_1996	S	Good Standing
2-Methylphenol (o-Cresol)	EPA 8270C_3_1996	NPW	Good Standing
2-Naphthylamine	EPA 625	NPW	Good Standing
2-Naphthylamine	EPA 8270B_(9/94)	S	Good Standing
2-Naphthylamine	EPA 8270B_(9/94)	NPW	Good Standing
2-Naphthylamine	EPA 8270C_3_1996	NPW	Good Standing
2-Naphthylamine	EPA 8270C_3_1996	S	Good Standing
2-Nitroaniline	EPA 8270B_(9/94)	NPW	Good Standing
2-Nitroaniline	EPA 8270B_(9/94)	S	Good Standing
2-Nitroaniline	EPA 8270C_3_1996	NPW	Good Standing
2-Nitroaniline	EPA 8270C_3_1996	S	Good Standing
2-Nitrophenol	EPA 625	NPW	Good Standing
2-Nitrophenol	EPA 8270B_(9/94)	S	Good Standing
2-Nitrophenol	EPA 8270B_(9/94)	NPW	Good Standing
2-Nitrophenol	EPA 8270C_3_1996	S	Good Standing
2-Nitrophenol	EPA 8270C_3_1996	NPW	Good Standing
2-Nitropropane	EPA 8260B_2_1996	NPW	Good Standing
2-Nitropropane	EPA 8260B_2_1996	S	Good Standing
2-Pentanone	EPA 8260B_2_1996	NPW	Good Standing
2-Pentanone	EPA 8260B_2_1996	S	Good Standing
2-Picoline (2-Methylpyridine)	EPA 624	NPW	Good Standing
2-Picoline (2-Methylpyridine)	EPA 8260B_2_1996	NPW	Good Standing
2-Picoline (2-Methylpyridine)	EPA 8260B_2_1996	S	Good Standing
2-Picoline (2-Methylpyridine)	EPA 8270B_(9/94)	S	Good Standing
2-Picoline (2-Methylpyridine)	EPA 8270B_(9/94)	NPW	Good Standing
2-Picoline (2-Methylpyridine)	EPA 8270C_3_1996	S	Good Standing
2-Picoline (2-Methylpyridine)	EPA 8270C_3_1996	NPW	Good Standing
2-Propanol	EPA 8260B_2_1996	S	Good Standing
2-Propanol	EPA 8260B_2_1996	NPW	Good Standing

OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY
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Oklahoma Department of Environmental Quality
Laboratory Accreditation Program

Scope of Accreditation

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2-Sec-butyl-4,6-dinitrophenol (DNBP, Dinoseb)	EPA 8270B_(9/94)	NPW	Good Standing
2-Sec-butyl-4,6-dinitrophenol (DNBP, Dinoseb)	EPA 8270B_(9/94)	S	Good Standing
3-(Chloromethyl) pyridine hydrochloride	EPA 8270B_(9/94)	S	Good Standing
3-(Chloromethyl) pyridine hydrochloride	EPA 8270B_(9/94)	NPW	Good Standing
3-(Chloromethyl) pyridine hydrochloride	EPA 8270C_3_1996	S	Good Standing
3-(Chloromethyl) pyridine hydrochloride	EPA 8270C_3_1996	NPW	Good Standing
3,3'-Dichlorobenzidine	EPA 625	NPW	Good Standing
3,3'-Dichlorobenzidine	EPA 8270B_(9/94)	S	Good Standing
3,3'-Dichlorobenzidine	EPA 8270B_(9/94)	NPW	Good Standing
3,3'-Dichlorobenzidine	EPA 8270C_3_1996	NPW	Good Standing
3,3'-Dichlorobenzidine	EPA 8270C_3_1996	S	Good Standing
3,3'-Dimethoxybenzidine	EPA 8270B_(9/94)	NPW	Good Standing
3,3'-Dimethoxybenzidine	EPA 8270B_(9/94)	S	Good Standing
3,3'-Dimethoxybenzidine	EPA 8270C_3_1996	S	Good Standing
3,3'-Dimethoxybenzidine	EPA 8270C_3_1996	NPW	Good Standing
3,3'-Dimethylbenzidine	EPA 8270B_(9/94)	NPW	Good Standing
3,3'-Dimethylbenzidine	EPA 8270B_(9/94)	S	Good Standing
3,3'-Dimethylbenzidine	EPA 8270C_3_1996	S	Good Standing
3,3'-Dimethylbenzidine	EPA 8270C_3_1996	NPW	Good Standing
3-Amino-9-ethylcarbazole	EPA 8270B_(9/94)	NPW	Good Standing
3-Amino-9-ethylcarbazole	EPA 8270B_(9/94)	S	Good Standing
3-Amino-9-ethylcarbazole	EPA 8270C_3_1996	NPW	Good Standing
3-Amino-9-ethylcarbazole	EPA 8270C_3_1996	S	Good Standing
3-Chloropropionitrile	EPA 8260B_2_1996	S	Good Standing
3-Chloropropionitrile	EPA 8260B_2_1996	NPW	Good Standing
3-Methylcholanthrene	EPA 8270B_(9/94)	S	Good Standing
3-Methylcholanthrene	EPA 8270B_(9/94)	NPW	Good Standing
3-Methylcholanthrene	EPA 8270C_3_1996	NPW	Good Standing
3-Methylcholanthrene	EPA 8270C_3_1996	S	Good Standing
3-Methylphenol (m-Cresol)	EPA 8270B_(9/94)	NPW	Good Standing
3-Methylphenol (m-Cresol)	EPA 8270B_(9/94)	S	Good Standing
3-Methylphenol (m-Cresol)	EPA 8270C_3_1996	S	Good Standing
3-Methylphenol (m-Cresol)	EPA 8270C_3_1996	NPW	Good Standing
3-Nitroaniline	EPA 8270B_(9/94)	S	Good Standing
3-Nitroaniline	EPA 8270B_(9/94)	NPW	Good Standing
3-Nitroaniline	EPA 8270C_3_1996	NPW	Good Standing
3-Nitroaniline	EPA 8270C_3_1996	S	Good Standing
4,4'-DDD	EPA 625	NPW	Good Standing
4,4'-DDD	EPA 8081B_(11/00)	NPW	Good Standing
4,4'-DDD	EPA 8081B_(11/00)	S	Good Standing
4,4'-DDD	EPA 8270C_3_1996	S	Good Standing
4,4'-DDD	EPA 8270C_3_1996	NPW	Good Standing
4,4'-DDE	EPA 625	NPW	Good Standing
4,4'-DDE	EPA 8081B_(11/00)	NPW	Good Standing
4,4'-DDE	EPA 8081B_(11/00)	S	Good Standing

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program

OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY
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4,4'-DDE	EPA 8270C_3_1996	NPW	Good Standing
4,4'-DDT	EPA 625	NPW	Good Standing
4,4'-DDT	EPA 8081B_(11/00)	S	Good Standing
4,4'-DDT	EPA 8081B_(11/00)	NPW	Good Standing
4,4'-DDT	EPA 8270C_3_1996	S	Good Standing
4,4'-DDT	EPA 8270C_3_1996	NPW	Good Standing
4,4'-Methylenebis(2-chloroaniline)	EPA 8270B_(9/94)	S	Good Standing
4,4'-Methylenebis(2-chloroaniline)	EPA 8270B_(9/94)	NPW	Good Standing
4,4'-Methylenebis(2-chloroaniline)	EPA 8270C_3_1996	NPW	Good Standing
4,4'-Methylenebis(2-chloroaniline)	EPA 8270C_3_1996	S	Good Standing
4,4'-Methylenebis(n, n-dimethylaniline)	EPA 8270B_(9/94)	NPW	Good Standing
4,4'-Methylenebis(n, n-dimethylaniline)	EPA 8270B_(9/94)	S	Good Standing
4,4'-Methylenebis(n, n-dimethylaniline)	EPA 8270C_3_1996	S	Good Standing
4,4'-Methylenebis(n, n-dimethylaniline)	EPA 8270C_3_1996	NPW	Good Standing
4,4'-Oxydianiline	EPA 8270B_(9/94)	S	Good Standing
4,4'-Oxydianiline	EPA 8270B_(9/94)	NPW	Good Standing
4,4'-Oxydianiline	EPA 8270C_3_1996	S	Good Standing
4,4'-Oxydianiline	EPA 8270C_3_1996	NPW	Good Standing
4,6-Dinitro-2-methylphenol	EPA 625	NPW	Good Standing
4,6-Dinitro-2-methylphenol	EPA 8270B_(9/94)	S	Good Standing
4,6-Dinitro-2-methylphenol	EPA 8270B_(9/94)	NPW	Good Standing
4,6-Dinitro-2-methylphenol	EPA 8270C_3_1996	NPW	Good Standing
4,6-Dinitro-2-methylphenol	EPA 8270C_3_1996	S	Good Standing
4-Aminobiphenyl	EPA 8270B_(9/94)	S	Good Standing
4-Aminobiphenyl	EPA 8270B_(9/94)	NPW	Good Standing
4-Aminobiphenyl	EPA 8270C_3_1996	NPW	Good Standing
4-Aminobiphenyl	EPA 8270C_3_1996	S	Good Standing
4-Bromophenyl phenyl ether	EPA 625	NPW	Good Standing
4-Bromophenyl phenyl ether	EPA 8270B_(9/94)	NPW	Good Standing
4-Bromophenyl phenyl ether	EPA 8270B_(9/94)	S	Good Standing
4-Bromophenyl phenyl ether	EPA 8270C_3_1996	NPW	Good Standing
4-Chloro-1,2-phenylenediamine	EPA 8270B_(9/94)	S	Good Standing
4-Chloro-1,2-phenylenediamine	EPA 8270B_(9/94)	NPW	Good Standing
4-Chloro-1,2-phenylenediamine	EPA 8270C_3_1996	S	Good Standing
4-Chloro-1,2-phenylenediamine	EPA 8270C_3_1996	NPW	Good Standing
4-Chloro-1,3-phenylenediamine	EPA 8270B_(9/94)	S	Good Standing
4-Chloro-1,3-phenylenediamine	EPA 8270B_(9/94)	NPW	Good Standing
4-Chloro-1,3-phenylenediamine	EPA 8270C_3_1996	NPW	Good Standing
4-Chloro-1,3-phenylenediamine	EPA 8270C_3_1996	S	Good Standing
4-Chloro-3-methylphenol	EPA 625	NPW	Good Standing
4-Chloro-3-methylphenol	EPA 8270B_(9/94)	S	Good Standing
4-Chloro-3-methylphenol	EPA 8270B_(9/94)	NPW	Good Standing
4-Chloro-3-methylphenol	EPA 8270C_3_1996	S	Good Standing
4-Chloro-3-methylphenol	EPA 8270C_3_1996	NPW	Good Standing
4-Chloroaniline	EPA 8270B_(9/94)	S	Good Standing

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program

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OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
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4-Chloroaniline	EPA 8270B_(9/94)	NPW	Good Standing
4-Chloroaniline	EPA 8270C_3_1996	NPW	Good Standing
4-Chloroaniline	EPA 8270C_3_1996	S	Good Standing
4-Chlorophenol	EPA 625	NPW	Good Standing
4-Chlorophenol	EPA 8270C_3_1996	S	Good Standing
4-Chlorophenol	EPA 8270C_3_1996	NPW	Good Standing
4-Chlorophenyl 4-nitrophenyl ether	EPA 8270C_3_1996	S	Good Standing
4-Chlorophenyl 4-nitrophenyl ether	EPA 8270C_3_1996	NPW	Good Standing
4-Chlorophenyl phenylether	EPA 625	NPW	Good Standing
4-Chlorophenyl phenylether	EPA 8270B_(9/94)	NPW	Good Standing
4-Chlorophenyl phenylether	EPA 8270B_(9/94)	S	Good Standing
4-Chlorophenyl phenylether	EPA 8270C_3_1996	S	Good Standing
4-Chlorophenyl phenylether	EPA 8270C_3_1996	NPW	Good Standing
4-Chlorotoluene	EPA 8260B_2_1996	S	Good Standing
4-Chlorotoluene	EPA 8260B_2_1996	NPW	Good Standing
4-Dimethyl aminoazobenzene	EPA 8270B_(9/94)	NPW	Good Standing
4-Dimethyl aminoazobenzene	EPA 8270B_(9/94)	S	Good Standing
4-Dimethyl aminoazobenzene	EPA 8270C_3_1996	NPW	Good Standing
4-Dimethyl aminoazobenzene	EPA 8270C_3_1996	S	Good Standing
4-Methyl-2-pentanone (MIBK)	EPA 8260B_2_1996	NPW	Good Standing
4-Methyl-2-pentanone (MIBK)	EPA 8260B_2_1996	S	Good Standing
4-Methylphenol (p-Cresol)	EPA 8270B_(9/94)	NPW	Good Standing
4-Methylphenol (p-Cresol)	EPA 8270B_(9/94)	S	Good Standing
4-Methylphenol (p-Cresol)	EPA 8270C_3_1996	S	Good Standing
4-Methylphenol (p-Cresol)	EPA 8270C_3_1996	NPW	Good Standing
4-Nitroaniline	EPA 8270B_(9/94)	S	Good Standing
4-Nitroaniline	EPA 8270B_(9/94)	NPW	Good Standing
4-Nitroaniline	EPA 8270C_3_1996	S	Good Standing
4-Nitroaniline	EPA 8270C_3_1996	NPW	Good Standing
4-Nitrobiphenyl	EPA 8270B_(9/94)	NPW	Good Standing
4-Nitrobiphenyl	EPA 8270B_(9/94)	S	Good Standing
4-Nitrobiphenyl	EPA 8270C_3_1996	S	Good Standing
4-Nitrobiphenyl	EPA 8270C_3_1996	NPW	Good Standing
4-Nitrophenol	EPA 625	NPW	Good Standing
4-Nitrophenol	EPA 8270B_(9/94)	S	Good Standing
4-Nitrophenol	EPA 8270B_(9/94)	NPW	Good Standing
4-Nitrophenol	EPA 8270C_3_1996	S	Good Standing
4-Nitrophenol	EPA 8270C_3_1996	NPW	Good Standing
5,5-Diphenylhydantoin	EPA 8270B_(9/94)	S	Good Standing
5,5-Diphenylhydantoin	EPA 8270B_(9/94)	NPW	Good Standing
5,5-Diphenylhydantoin	EPA 8270C_3_1996	NPW	Good Standing
5,5-Diphenylhydantoin	EPA 8270C_3_1996	S	Good Standing
5-Chloro-2-methylaniline	EPA 8270B_(9/94)	S	Good Standing
5-Chloro-2-methylaniline	EPA 8270B_(9/94)	NPW	Good Standing
5-Chloro-2-methylaniline	EPA 8270C_3_1996	S	Good Standing

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5-Chloro-2-methylaniline	EPA 8270C_3_1996	NPW	Good Standing
5-Nitroacenaphthene	EPA 8270B_(9/94)	S	Good Standing
5-Nitroacenaphthene	EPA 8270B_(9/94)	NPW	Good Standing
5-Nitroacenaphthene	EPA 8270C_3_1996	NPW	Good Standing
5-Nitroacenaphthene	EPA 8270C_3_1996	S	Good Standing
5-Nitro-o-anisidine	EPA 8270B_(9/94)	S	Good Standing
5-Nitro-o-anisidine	EPA 8270B_(9/94)	NPW	Good Standing
5-Nitro-o-anisidine	EPA 8270C_3_1996	S	Good Standing
5-Nitro-o-anisidine	EPA 8270C_3_1996	NPW	Good Standing
5-Nitro-o-toluidine	EPA 8270B_(9/94)	S	Good Standing
5-Nitro-o-toluidine	EPA 8270B_(9/94)	NPW	Good Standing
5-Nitro-o-toluidine	EPA 8270C_3_1996	S	Good Standing
5-Nitro-o-toluidine	EPA 8270C_3_1996	NPW	Good Standing
7,12-Dimethylbenz(a) anthracene	EPA 8270B_(9/94)	NPW	Good Standing
7,12-Dimethylbenz(a) anthracene	EPA 8270B_(9/94)	S	Good Standing
7,12-Dimethylbenz(a) anthracene	EPA 8270C_3_1996	S	Good Standing
7,12-Dimethylbenz(a) anthracene	EPA 8270C_3_1996	NPW	Good Standing
a-a-Dimethylphenethylamine	EPA 8270B_(9/94)	NPW	Good Standing
a-a-Dimethylphenethylamine	EPA 8270B_(9/94)	S	Good Standing
a-a-Dimethylphenethylamine	EPA 8270C_3_1996	NPW	Good Standing
a-a-Dimethylphenethylamine	EPA 8270C_3_1996	S	Good Standing
Acenaphthene	EPA 625	NPW	Good Standing
Acenaphthene	EPA 8270B_(9/94)	S	Good Standing
Acenaphthene	EPA 8270B_(9/94)	NPW	Good Standing
Acenaphthene	EPA 8270C_3_1996	NPW	Good Standing
Acenaphthene	EPA 8270C_3_1996	S	Good Standing
Acenaphthylene	EPA 625	NPW	Good Standing
Acenaphthylene	EPA 8270B_(9/94)	S	Good Standing
Acenaphthylene	EPA 8270B_(9/94)	NPW	Good Standing
Acenaphthylene	EPA 8270C_3_1996	NPW	Good Standing
Acenaphthylene	EPA 8270C_3_1996	S	Good Standing
Acetone	EPA 624	NPW	Good Standing
Acetone	EPA 8260B_2_1996	S	Good Standing
Acetone	EPA 8260B_2_1996	NPW	Good Standing
Acetonitrile	EPA 624	NPW	Good Standing
Acetonitrile	EPA 8260B_2_1996	NPW	Good Standing
Acetonitrile	EPA 8260B_2_1996	S	Good Standing
Acetophenone	EPA 8270B_(9/94)	NPW	Good Standing
Acetophenone	EPA 8270B_(9/94)	S	Good Standing
Acetophenone	EPA 8270C_3_1996	S	Good Standing
Acetophenone	EPA 8270C_3_1996	NPW	Good Standing
Acidity, as CaCO3	SM 18th ED 2310 B (4A)	NPW	Good Standing
Acrolein (Propenal)	EPA 624	NPW	Good Standing
Acrolein (Propenal)	EPA 8260B_2_1996	NPW	Good Standing
Acrolein (Propenal)	EPA 8260B_2_1996	S	Good Standing

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Acrylonitrile	EPA 624	NPW	Good Standing
Acrylonitrile	EPA 8260B_2_1996	NPW	Good Standing
Acrylonitrile	EPA 8260B_2_1996	S	Good Standing
Alachlor	EPA 8081B_(11/00)	S	Good Standing
Alachlor	EPA 8081B_(11/00)	NPW	Good Standing
Aldrin	EPA 625	NPW	Good Standing
Aldrin	EPA 8081B_(11/00)	S	Good Standing
Aldrin	EPA 8081B_(11/00)	NPW	Good Standing
Aldrin	EPA 8270C_3_1996	NPW	Good Standing
Aldrin	EPA 8270C_3_1996	S	Good Standing
Alkalinity as CaCO3	SM 2320 B 20th ED (1998)	NPW	Good Standing
All 8270 compounds	EPA 8270_(9/86)	S	Good Standing
All 8270 compounds	EPA 8270_(9/86)	NPW	Good Standing
Allyl alcohol	EPA 8260B_2_1996	S	Good Standing
Allyl alcohol	EPA 8260B_2_1996	NPW	Good Standing
Allyl chloride (3-Chloropropene)	EPA 8260B_2_1996	NPW	Good Standing
Allyl chloride (3-Chloropropene)	EPA 8260B_2_1996	S	Good Standing
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 625	NPW	Good Standing
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8081B_(11/00)	NPW	Good Standing
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8081B_(11/00)	S	Good Standing
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8270C_3_1996	NPW	Good Standing
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8270C_3_1996	S	Good Standing
alpha-Chlordane	EPA 8081B_(11/00)	S	Good Standing
alpha-Chlordane	EPA 8081B_(11/00)	NPW	Good Standing
alpha-Terpineol	EPA 625	NPW	Good Standing
Aluminum	EPA 200.7_5_1998	NPW	Good Standing
Aluminum	EPA 6010B_2_1996	NPW	Good Standing
Aluminum	EPA 6010B_2_1996	S	Good Standing
Amenable cyanide	EPA 9010C	NPW	Good Standing
Amenable cyanide	EPA 9014_0_1996	NPW	Good Standing
Amenable cyanide	SM 4500-CN G 20th ED (1998)	NPW	Good Standing
Aminoazobenzene	EPA 8270B_(9/94)	S	Good Standing
Aminoazobenzene	EPA 8270B_(9/94)	NPW	Good Standing
Aminoazobenzene	EPA 8270C_3_1996	S	Good Standing
Aminoazobenzene	EPA 8270C_3_1996	NPW	Good Standing
Ammonia as N	SM 4500-NH3 B 20th ED (1998)	NPW	Good Standing
Ammonia as N	SM 4500-NH3 B 20th ED (1998)	S	Good Standing
Ammonia as N	SM 4500-NH3 D 20th ED (1998)	S	Good Standing
Ammonia as N	SM 4500-NH3 D 20th ED (1998)	NPW	Good Standing
Anilazine	EPA 8270C_3_1996	S	Good Standing
Anilazine	EPA 8270C_3_1996	NPW	Good Standing
Aniline	EPA 8270B_(9/94)	NPW	Good Standing
Aniline	EPA 8270B_(9/94)	S	Good Standing
Aniline	EPA 8270C_3_1996	NPW	Good Standing
Aniline	EPA 8270C_3_1996	S	Good Standing

Oklahoma Department of Environmental Quality
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Anthracene	EPA 625	NPW	Good Standing
Anthracene	EPA 8270B_(9/94)	S	Good Standing
Anthracene	EPA 8270B_(9/94)	NPW	Good Standing
Anthracene	EPA 8270C_3_1996	NPW	Good Standing
Anthracene	EPA 8270C_3_1996	S	Good Standing
Antimony	EPA 200.7_5_1998	NPW	Good Standing
Antimony	EPA 6010B_2_1996	NPW	Good Standing
Antimony	EPA 6010B_2_1996	S	Good Standing
Aramite	EPA 8270B_(9/94)	S	Good Standing
Aramite	EPA 8270B_(9/94)	NPW	Good Standing
Aramite	EPA 8270C_3_1996	NPW	Good Standing
Aramite	EPA 8270C_3_1996	S	Good Standing
Argon-41	EPA 901	NPW	Good Standing
Argon-41	EPA 901.1	S	Good Standing
Argon-41	EPA 901.1	NPW	Good Standing
Aroclor-1016 (PCB-1016)	EPA 8082A_(11/00)	S	Good Standing
Aroclor-1016 (PCB-1016)	EPA 8082A_(11/00)	NPW	Good Standing
Aroclor-1016 (PCB-1016)	EPA 8270C_3_1996	S	Good Standing
Aroclor-1016 (PCB-1016)	EPA 8270C_3_1996	NPW	Good Standing
Aroclor-1221 (PCB-1221)	EPA 8082A_(11/00)	NPW	Good Standing
Aroclor-1221 (PCB-1221)	EPA 8082A_(11/00)	S	Good Standing
Aroclor-1221 (PCB-1221)	EPA 8270C_3_1996	NPW	Good Standing
Aroclor-1221 (PCB-1221)	EPA 8270C_3_1996	S	Good Standing
Aroclor-1232 (PCB-1232)	EPA 8082A_(11/00)	S	Good Standing
Aroclor-1232 (PCB-1232)	EPA 8082A_(11/00)	NPW	Good Standing
Aroclor-1232 (PCB-1232)	EPA 8270C_3_1996	S	Good Standing
Aroclor-1232 (PCB-1232)	EPA 8270C_3_1996	NPW	Good Standing
Aroclor-1242 (PCB-1242)	EPA 8082A_(11/00)	NPW	Good Standing
Aroclor-1242 (PCB-1242)	EPA 8082A_(11/00)	S	Good Standing
Aroclor-1242 (PCB-1242)	EPA 8270C_3_1996	S	Good Standing
Aroclor-1242 (PCB-1242)	EPA 8270C_3_1996	NPW	Good Standing
Aroclor-1248 (PCB-1248)	EPA 8082A_(11/00)	S	Good Standing
Aroclor-1248 (PCB-1248)	EPA 8082A_(11/00)	NPW	Good Standing
Aroclor-1248 (PCB-1248)	EPA 8270C_3_1996	S	Good Standing
Aroclor-1248 (PCB-1248)	EPA 8270C_3_1996	NPW	Good Standing
Aroclor-1254 (PCB-1254)	EPA 8082A_(11/00)	S	Good Standing
Aroclor-1254 (PCB-1254)	EPA 8082A_(11/00)	NPW	Good Standing
Aroclor-1254 (PCB-1254)	EPA 8270C_3_1996	NPW	Good Standing
Aroclor-1254 (PCB-1254)	EPA 8270C_3_1996	S	Good Standing
Aroclor-1260 (PCB-1260)	EPA 8082A_(11/00)	S	Good Standing
Aroclor-1260 (PCB-1260)	EPA 8082A_(11/00)	NPW	Good Standing
Aroclor-1260 (PCB-1260)	EPA 8270C_3_1996	S	Good Standing
Aroclor-1260 (PCB-1260)	EPA 8270C_3_1996	NPW	Good Standing
Arsenic	EPA 200.7_5_1998	NPW	Good Standing
Arsenic	EPA 6010B_2_1996	NPW	Good Standing

Oklahoma Department of Environmental Quality
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OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
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Outreach Laboratory
311 North Aspen
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(918)-251-2515

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State Lab ID: 9517
Clean Water Program

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Arsenic	EPA 6010B_2_1996	S	Good Standing
Atrazine	EPA 625	NPW	Good Standing
Atrazine	EPA 8270C_3_1996	S	Good Standing
Atrazine	EPA 8270C_3_1996	NPW	Good Standing
Azinphos-methyl (Guthion)	EPA 8270C_3_1996	S	Good Standing
Azinphos-methyl (Guthion)	EPA 8270C_3_1996	NPW	Good Standing
Barban	EPA 8270C_3_1996	NPW	Good Standing
Barban	EPA 8270C_3_1996	S	Good Standing
Barium	EPA 200.7_5_1998	NPW	Good Standing
Barium	EPA 6010B_2_1996	S	Good Standing
Barium	EPA 6010B_2_1996	NPW	Good Standing
Barium 133	EPA 901	S	Good Standing
Barium 133	EPA 901	NPW	Good Standing
Barium 133	EPA 901.1	S	Good Standing
Barium 133	EPA 901.1	NPW	Good Standing
Barium-140	EPA 901	NPW	Good Standing
Barium-140	EPA 901.1	S	Good Standing
Barium-140	EPA 901.1	NPW	Good Standing
Benzal chloride	EPA 8270C_3_1996	S	Good Standing
Benzal chloride	EPA 8270C_3_1996	NPW	Good Standing
Benzaldehyde	EPA 8270C_3_1996	NPW	Good Standing
Benzaldehyde	EPA 8270C_3_1996	S	Good Standing
Benzene	EPA 624	NPW	Good Standing
Benzene	EPA 8260B_2_1996	S	Good Standing
Benzene	EPA 8260B_2_1996	NPW	Good Standing
Benzidine	EPA 625	NPW	Good Standing
Benzidine	EPA 8270B_(9/94)	S	Good Standing
Benzidine	EPA 8270B_(9/94)	NPW	Good Standing
Benzidine	EPA 8270C_3_1996	S	Good Standing
Benzidine	EPA 8270C_3_1996	NPW	Good Standing
Benzo(a)anthracene	EPA 625	NPW	Good Standing
Benzo(a)anthracene	EPA 8270B_(9/94)	S	Good Standing
Benzo(a)anthracene	EPA 8270B_(9/94)	NPW	Good Standing
Benzo(a)anthracene	EPA 8270C_3_1996	S	Good Standing
Benzo(a)anthracene	EPA 8270C_3_1996	NPW	Good Standing
Benzo(a)pyrene	EPA 625	NPW	Good Standing
Benzo(a)pyrene	EPA 8270B_(9/94)	S	Good Standing
Benzo(a)pyrene	EPA 8270B_(9/94)	NPW	Good Standing
Benzo(a)pyrene	EPA 8270C_3_1996	NPW	Good Standing
Benzo(a)pyrene	EPA 8270C_3_1996	S	Good Standing
Benzo(g,h,i)perylene	EPA 625	NPW	Good Standing
Benzo(g,h,i)perylene	EPA 8270B_(9/94)	S	Good Standing
Benzo(g,h,i)perylene	EPA 8270B_(9/94)	NPW	Good Standing
Benzo(g,h,i)perylene	EPA 8270C_3_1996	S	Good Standing
Benzo(g,h,i)perylene	EPA 8270C_3_1996	NPW	Good Standing

DEPARTMENT OF ENVIRONMENTAL QUALITY OKLAHOMA

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Benzo(j)fluoranthene	EPA 8270C_3_1996	S	Good Standing
Benzo(j)fluoranthene	EPA 8270C_3_1996	NPW	Good Standing
Benzo(k)fluoranthene	EPA 625	NPW	Good Standing
Benzo(k)fluoranthene	EPA 8270B_(9/94)	S	Good Standing
Benzo(k)fluoranthene	EPA 8270C_3_1996	NPW	Good Standing
Benzo(k)fluoranthene	EPA 8270C_3_1996	S	Good Standing
Benzo[b]fluoranthene	EPA 625	NPW	Good Standing
Benzo[b]fluoranthene	EPA 8270B_(9/94)	S	Good Standing
Benzo[b]fluoranthene	EPA 8270B_(9/94)	NPW	Good Standing
Benzo[b]fluoranthene	EPA 8270C_3_1996	NPW	Good Standing
Benzo[b]fluoranthene	EPA 8270C_3_1996	S	Good Standing
Benzoic acid	EPA 625	NPW	Good Standing
Benzoic acid	EPA 8270B_(9/94)	S	Good Standing
Benzoic acid	EPA 8270B_(9/94)	NPW	Good Standing
Benzoic acid	EPA 8270C_3_1996	NPW	Good Standing
Benzoic acid	EPA 8270C_3_1996	S	Good Standing
Benzotrichloride	EPA 8270C_3_1996	S	Good Standing
Benzotrichloride	EPA 8270C_3_1996	NPW	Good Standing
Benzyl alcohol	EPA 8270B_(9/94)	NPW	Good Standing
Benzyl alcohol	EPA 8270B_(9/94)	S	Good Standing
Benzyl alcohol	EPA 8270C_3_1996	S	Good Standing
Benzyl alcohol	EPA 8270C_3_1996	NPW	Good Standing
Benzyl chloride	EPA 8260B_2_1996	S	Good Standing
Benzyl chloride	EPA 8260B_2_1996	NPW	Good Standing
Benzyl chloride	EPA 8270C_3_1996	NPW	Good Standing
Benzyl chloride	EPA 8270C_3_1996	S	Good Standing
Beryllium	EPA 200.7_5_1998	NPW	Good Standing
Beryllium	EPA 6010B_2_1996	S	Good Standing
Beryllium	EPA 6010B_2_1996	NPW	Good Standing
beta-BHC (beta-Hexachlorocyclohexane)	EPA 625	NPW	Good Standing
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8081B_(11/00)	NPW	Good Standing
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8081B_(11/00)	S	Good Standing
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8270C_3_1996	NPW	Good Standing
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8270C_3_1996	S	Good Standing
beta-Propiolactone	EPA 8260B_2_1996	S	Good Standing
beta-Propiolactone	EPA 8260B_2_1996	NPW	Good Standing
Biochemical oxygen demand	SM 5210 B 20th ED (1998)	NPW	Good Standing
Biphenyl	EPA 625	NPW	Good Standing
Biphenyl	EPA 8270C_3_1996	S	Good Standing
Biphenyl	EPA 8270C_3_1996	NPW	Good Standing
bis(2-Chloroethoxy)methane	EPA 8270B_(9/94)	S	Good Standing
bis(2-Chloroethoxy)methane	EPA 8270B_(9/94)	NPW	Good Standing
bis(2-Chloroethoxy)methane	EPA 8270C_3_1996	S	Good Standing
bis(2-Chloroethoxy)methane	EPA 8270C_3_1996	NPW	Good Standing
bis(2-Chloroethyl) ether	EPA 625	NPW	Good Standing

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O K L A H O M A
DEPARTMENT OF ENVIRONMENTAL QUALITY
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bis(2-Chloroethyl) ether	EPA 8270B_(9/94)	NPW	Good Standing
bis(2-Chloroethyl) ether	EPA 8270B_(9/94)	S	Good Standing
bis(2-Chloroethyl) ether	EPA 8270C_3_1996	NPW	Good Standing
bis(2-Chloroethyl) ether	EPA 8270C_3_1996	S	Good Standing
bis(2-Chloroethyl) sulfide	EPA 8260B_2_1996	NPW	Good Standing
bis(2-Chloroethyl) sulfide	EPA 8260B_2_1996	S	Good Standing
bis(2-Chloroisopropyl) ether	EPA 625	NPW	Good Standing
bis(2-Chloroisopropyl) ether	EPA 8270B_(9/94)	S	Good Standing
bis(2-Chloroisopropyl) ether	EPA 8270B_(9/94)	NPW	Good Standing
bis(2-Chloroisopropyl) ether	EPA 8270C_3_1996	NPW	Good Standing
bis(2-Chloroisopropyl) ether	EPA 8270C_3_1996	S	Good Standing
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 625	NPW	Good Standing
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 8270C_3_1996	S	Good Standing
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 8270C_3_1996	NPW	Good Standing
Boron	EPA 200.7_5_1998	NPW	Good Standing
Boron	EPA 6010B_2_1996	S	Good Standing
Boron	EPA 6010B_2_1996	NPW	Good Standing
Bromine-82	EPA 901	NPW	Good Standing
Bromine-82	EPA 901.1	NPW	Good Standing
Bromine-82	EPA 901.1	S	Good Standing
Bromoacetone	EPA 8260B_2_1996	S	Good Standing
Bromoacetone	EPA 8260B_2_1996	NPW	Good Standing
Bromobenzene	EPA 8260B_2_1996	S	Good Standing
Bromobenzene	EPA 8260B_2_1996	NPW	Good Standing
Bromochloromethane	EPA 8260B_2_1996	NPW	Good Standing
Bromochloromethane	EPA 8260B_2_1996	S	Good Standing
Bromodichloromethane	EPA 624	NPW	Good Standing
Bromodichloromethane	EPA 8260B_2_1996	NPW	Good Standing
Bromodichloromethane	EPA 8260B_2_1996	S	Good Standing
Bromoform	EPA 624	NPW	Good Standing
Bromoform	EPA 8260B_2_1996	S	Good Standing
Bromoform	EPA 8260B_2_1996	NPW	Good Standing
Bromoxynil octanate	EPA 8270C_3_1996	S	Good Standing
Bromoxynil octanate	EPA 8270C_3_1996	NPW	Good Standing
Butyl benzyl phthalate	EPA 625	NPW	Good Standing
Butyl benzyl phthalate	EPA 8270B_(9/94)	NPW	Good Standing
Butyl benzyl phthalate	EPA 8270B_(9/94)	S	Good Standing
Butyl benzyl phthalate	EPA 8270C_3_1996	S	Good Standing
Cadmium	EPA 200.7_5_1998	NPW	Good Standing
Cadmium	EPA 6010B_2_1996	S	Good Standing
Cadmium	EPA 6010B_2_1996	NPW	Good Standing
Calcium	EPA 200.7_5_1998	NPW	Good Standing
Calcium	EPA 6010B_2_1996	NPW	Good Standing
Calcium	EPA 6010B_2_1996	S	Good Standing
Calcium-45	EPA 901.1	NPW	Good Standing

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Calcium-45	EPA 901.1	S	Good Standing
Caprolactam	EPA 8270C_3_1996	S	Good Standing
Caprolactam	EPA 8270C_3_1996	NPW	Good Standing
Captafol	EPA 8081B_(11/00)	S	Good Standing
Captafol	EPA 8081B_(11/00)	NPW	Good Standing
Captafol	EPA 8270C_3_1996	NPW	Good Standing
Captafol	EPA 8270C_3_1996	S	Good Standing
Captan	EPA 8270C_3_1996	NPW	Good Standing
Captan	EPA 8270C_3_1996	S	Good Standing
Carbaryl (Sevin)	EPA 8270C_3_1996	S	Good Standing
Carbaryl (Sevin)	EPA 8270C_3_1996	NPW	Good Standing
Carbazole	EPA 625	NPW	Good Standing
Carbazole	EPA 8270C_3_1996	S	Good Standing
Carbazole	EPA 8270C_3_1996	NPW	Good Standing
Carbofuran (Furaden)	EPA 8270C_3_1996	NPW	Good Standing
Carbofuran (Furaden)	EPA 8270C_3_1996	S	Good Standing
Carbon disulfide	EPA 8260B_2_1996	NPW	Good Standing
Carbon disulfide	EPA 8260B_2_1996	S	Good Standing
Carbon tetrachloride	EPA 624	NPW	Good Standing
Carbon tetrachloride	EPA 8260B_2_1996	NPW	Good Standing
Carbon tetrachloride	EPA 8260B_2_1996	S	Good Standing
Carbonaceous BOD, CBOD	SM 5210 B 20th ED (1998)	NPW	Good Standing
Carbonyl sulfide	EPA 8260B_2_1996	S	Good Standing
Carbonyl sulfide	EPA 8260B_2_1996	NPW	Good Standing
Carbophenothion	EPA 8270C_3_1996	S	Good Standing
Carbophenothion	EPA 8270C_3_1996	NPW	Good Standing
Cerium-144	EPA 901.1	S	Good Standing
Cerium-144	EPA 901.1	NPW	Good Standing
Cesium-134	EPA 901	NPW	Good Standing
Cesium-134	EPA 901	S	Good Standing
Cesium-134	EPA 901.1	NPW	Good Standing
Cesium-134	EPA 901.1	S	Good Standing
Cesium-137	EPA 901	S	Good Standing
Cesium-137	EPA 901	NPW	Good Standing
Cesium-137	EPA 901.1	NPW	Good Standing
Cesium-137	EPA 901.1	S	Good Standing
Chemical oxygen demand	OTHER HACH 8000	NPW	Good Standing
Chloral hydrate	EPA 8260B_2_1996	NPW	Good Standing
Chloral hydrate	EPA 8260B_2_1996	S	Good Standing
Chlordane (tech.)	EPA 625	NPW	Good Standing
Chlordane (tech.)	EPA 8081B_(11/00)	NPW	Good Standing
Chlordane (tech.)	EPA 8081B_(11/00)	S	Good Standing
Chlordane (tech.)	EPA 8270C_3_1996	NPW	Good Standing
Chlordane (tech.)	EPA 8270C_3_1996	S	Good Standing
Chlorfenvinphos	EPA 8270C_3_1996	S	Good Standing

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Chlorfenvinphos	EPA 8270C_3_1996	NPW	Good Standing
Chloride	ASTM D512-89B	NPW	Good Standing
Chloride	SM 4500-Cl C 20th ED (1998)	NPW	Good Standing
Chloride	SM 4500-Cl» B 19th ED (1995)	NPW	Good Standing
Chlorine	SM 4500-Cl G 20th ED (1998)	NPW	Good Standing
Chlorine	SM 4500-Cl H 21st ED (2005)	NPW	Good Standing
Chlorobenzene	EPA 624	NPW	Good Standing
Chlorobenzene	EPA 8260B_2_1996	S	Good Standing
Chlorobenzene	EPA 8260B_2_1996	NPW	Good Standing
Chlorobenzilate	EPA 8270C_3_1996	NPW	Good Standing
Chlorobenzilate	EPA 8270C_3_1996	S	Good Standing
Chloroethane	EPA 624	NPW	Good Standing
Chloroethane	EPA 8260B_2_1996	S	Good Standing
Chloroethane	EPA 8260B_2_1996	NPW	Good Standing
Chloroform	EPA 624	NPW	Good Standing
Chloroform	EPA 8260B_2_1996	NPW	Good Standing
Chloroform	EPA 8260B_2_1996	S	Good Standing
Chloroprene	EPA 8260B_2_1996	NPW	Good Standing
Chloroprene	EPA 8260B_2_1996	S	Good Standing
Chromium	EPA 200.7_5_1998	NPW	Good Standing
Chromium	EPA 6010B_2_1996	NPW	Good Standing
Chromium	EPA 6010B_2_1996	S	Good Standing
Chromium VI	EPA 3060A_1_1996	NPW	Good Standing
Chromium VI	EPA 7196A_1_1992	NPW	Good Standing
Chromium VI	SM 3500-Cr B 20th ED (1998)	NPW	Good Standing
Chromium-51	EPA 901.1	NPW	Good Standing
Chromium-51	EPA 901.1	S	Good Standing
Chrysene	EPA 625	NPW	Good Standing
Chrysene	EPA 8270B_(9/94)	NPW	Good Standing
Chrysene	EPA 8270B_(9/94)	S	Good Standing
Chrysene	EPA 8270C_3_1996	S	Good Standing
Chrysene	EPA 8270C_3_1996	NPW	Good Standing
cis & trans-1,2-Dichloroethene	EPA 8260B_2_1996	NPW	Good Standing
cis & trans-1,2-Dichloroethene	EPA 8260B_2_1996	S	Good Standing
cis-1,2-Dichloroethylene	EPA 8260B_2_1996	NPW	Good Standing
cis-1,2-Dichloroethylene	EPA 8260B_2_1996	S	Good Standing
cis-1,3-Dichloropropene	EPA 624	NPW	Good Standing
cis-1,3-Dichloropropene	EPA 8260B_2_1996	NPW	Good Standing
cis-1,3-Dichloropropene	EPA 8260B_2_1996	S	Good Standing
cis-1,4-Dichloro-2-butene	EPA 8260B_2_1996	NPW	Good Standing
cis-1,4-Dichloro-2-butene	EPA 8260B_2_1996	S	Good Standing
Cobalt	EPA 200.7_5_1998	NPW	Good Standing
Cobalt	EPA 6010B_2_1996	S	Good Standing
Cobalt	EPA 6010B_2_1996	NPW	Good Standing
Cobalt 60	EPA 901	S	Good Standing

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program
Scope of Accreditation

O K L A H O M A
DEPARTMENT OF ENVIRONMENTAL QUALITY
...for a clean, attractive, prosperous Oklahoma

Outreach Laboratory
311 North Aspen
Broken Arrow, OK 74012
(918)-251-2515

Laboratory ID: OK00922
State Lab ID: 9517
Clean Water Program

Certificate Number: **2009-105**
Date of Issue: 9/1/2009
Expiration Date: 8/31/2010

Has demonstrated the capability to analyze environmental samples in accordance with Oklahoma Rules 252:301 and is hereby granted CERTIFICATION FOR:

Cobalt 60	EPA 901	NPW	Good Standing
Cobalt 60	EPA 901.1	NPW	Good Standing
Cobalt 60	EPA 901.1	S	Good Standing
Conductivity	EPA 120.1_1982	NPW	Good Standing
Conductivity	SM 2510 B 20th ED (1998)	NPW	Good Standing
Copper	EPA 200.7_5_1998	NPW	Suspended
Copper	EPA 6010B_2_1996	NPW	Suspended
Copper	EPA 6010B_2_1996	S	Suspended
Corrosivity (pH)	EPA 9040B_2_1995	NPW	Good Standing
Corrosivity (pH)	EPA 9040B_2_1995	S	Good Standing
Coumaphos	EPA 8270C_3_1996	S	Good Standing
Coumaphos	EPA 8270C_3_1996	NPW	Good Standing
Crotonaldehyde	EPA 8260B_2_1996	S	Good Standing
Crotonaldehyde	EPA 8260B_2_1996	NPW	Good Standing
Crotoxyphos	EPA 8270C_3_1996	NPW	Good Standing
Crotoxyphos	EPA 8270C_3_1996	S	Good Standing
Cyanide	EPA 7.3.3.2_3_1996	NPW	Good Standing
Cyanide	EPA 7.3.3.2_3_1996	S	Good Standing
Cyanide	EPA 9010B_2_1996	NPW	Good Standing
Cyanide	EPA 9014_0_1996	NPW	Good Standing
Cyanide	SM 4500-CN C 20th ED (1998)	NPW	Good Standing
Cyanide	SM 4500-CN E 20th ED (1998)	NPW	Good Standing
Cyclohexane	EPA 8260B_2_1996	NPW	Good Standing
delta-BHC	EPA 625	NPW	Good Standing
delta-BHC	EPA 8081B_(11/00)	S	Good Standing
delta-BHC	EPA 8081B_(11/00)	NPW	Good Standing
delta-BHC	EPA 8270C_3_1996	S	Good Standing
delta-BHC	EPA 8270C_3_1996	NPW	Good Standing
Demeton	EPA 8270C_3_1996	S	Good Standing
Demeton	EPA 8270C_3_1996	NPW	Good Standing
Demeton-o	EPA 8270C_3_1996	S	Good Standing
Demeton-o	EPA 8270C_3_1996	NPW	Good Standing
Demeton-s	EPA 8270C_3_1996	NPW	Good Standing
Demeton-s	EPA 8270C_3_1996	S	Good Standing
Di(2-ethylhexyl)adipate	EPA 625	NPW	Good Standing
Di(2-ethylhexyl)adipate	EPA 8270C_3_1996	NPW	Good Standing
Di(2-ethylhexyl)adipate	EPA 8270C_3_1996	S	Good Standing
Di(2-ethylhexyl)phthalate	EPA 8270B_(9/94)	NPW	Good Standing
Di(2-ethylhexyl)phthalate	EPA 8270B_(9/94)	S	Good Standing
Di(2-ethylhexyl)phthalate	EPA 8270C_3_1996	S	Good Standing
Di(2-ethylhexyl)phthalate	EPA 8270C_3_1996	NPW	Good Standing
Diallate	EPA 8270C_3_1996	NPW	Good Standing
Diallate	EPA 8270C_3_1996	S	Good Standing
Dibenz(a, h) acridine	EPA 8270C_3_1996	S	Good Standing
Dibenz(a, h) acridine	EPA 8270C_3_1996	NPW	Good Standing

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program

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Dibenz(a, j) acridine	EPA 8270B_(9/94)	S	Good Standing
Dibenz(a, j) acridine	EPA 8270B_(9/94)	NPW	Good Standing
Dibenz(a, j) acridine	EPA 8270C_3_1996	NPW	Good Standing
Dibenz(a, j) acridine	EPA 8270C_3_1996	S	Good Standing
Dibenz(a,h) anthracene	EPA 625	NPW	Good Standing
Dibenz(a,h) anthracene	EPA 8270B_(9/94)	S	Good Standing
Dibenz(a,h) anthracene	EPA 8270B_(9/94)	NPW	Good Standing
Dibenz(a,h) anthracene	EPA 8270C_3_1996	NPW	Good Standing
Dibenz(a,h) anthracene	EPA 8270C_3_1996	S	Good Standing
Dibenzo(a, h) pyrene	EPA 8270C_3_1996	S	Good Standing
Dibenzo(a, h) pyrene	EPA 8270C_3_1996	NPW	Good Standing
Dibenzo(a, i) pyrene	EPA 8270C_3_1996	S	Good Standing
Dibenzo(a, i) pyrene	EPA 8270C_3_1996	NPW	Good Standing
Dibenzo(a,e) pyrene	EPA 8270B_(9/94)	NPW	Good Standing
Dibenzo(a,e) pyrene	EPA 8270B_(9/94)	S	Good Standing
Dibenzo(a,e) pyrene	EPA 8270C_3_1996	S	Good Standing
Dibenzo(a,e) pyrene	EPA 8270C_3_1996	NPW	Good Standing
Dibenzofuran	EPA 625	NPW	Good Standing
Dibenzofuran	EPA 8270B_(9/94)	S	Good Standing
Dibenzofuran	EPA 8270B_(9/94)	NPW	Good Standing
Dibenzofuran	EPA 8270C_3_1996	NPW	Good Standing
Dibenzofuran	EPA 8270C_3_1996	S	Good Standing
Dibromochloromethane	EPA 624	NPW	Good Standing
Dibromochloromethane	EPA 8260B_2_1996	S	Good Standing
Dibromochloromethane	EPA 8260B_2_1996	NPW	Good Standing
Dibromochloropropane	EPA 624	NPW	Good Standing
Dibromochloropropane	EPA 8260B_2_1996	S	Good Standing
Dibromochloropropane	EPA 8260B_2_1996	NPW	Good Standing
Dibromomethane	EPA 8260B_2_1996	NPW	Good Standing
Dibromomethane	EPA 8260B_2_1996	S	Good Standing
Dibutylphthalate	EPA 8270C_3_1996	S	Good Standing
Dibutylphthalate	EPA 8270C_3_1996	NPW	Good Standing
Dichlone	EPA 8270C_3_1996	NPW	Good Standing
Dichlone	EPA 8270C_3_1996	S	Good Standing
Dichlorodifluoromethane	EPA 624	NPW	Good Standing
Dichlorodifluoromethane	EPA 8260B_2_1996	NPW	Good Standing
Dichlorodifluoromethane	EPA 8260B_2_1996	S	Good Standing
Dichloromethane (DCM, Methylene chloride)	EPA 624	NPW	Good Standing
Dichloromethane (DCM, Methylene chloride)	EPA 8260B_2_1996	S	Good Standing
Dichloromethane (DCM, Methylene chloride)	EPA 8260B_2_1996	NPW	Good Standing
Dichlorovos (DDVP, Dichlorvos)	EPA 8270C_3_1996	NPW	Good Standing
Dichlorovos (DDVP, Dichlorvos)	EPA 8270C_3_1996	S	Good Standing
Dicrotophos	EPA 8270C_3_1996	S	Good Standing
Dicrotophos	EPA 8270C_3_1996	NPW	Good Standing
Dieldrin	EPA 625	NPW	Good Standing

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
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Dieldrin	EPA 8081B_(11/00)	NPW	Good Standing
Dieldrin	EPA 8081B_(11/00)	S	Good Standing
Dieldrin	EPA 8270C_3_1996	S	Good Standing
Dieldrin	EPA 8270C_3_1996	NPW	Good Standing
Diethyl ether	EPA 624	NPW	Good Standing
Diethyl ether	EPA 8260B_2_1996	NPW	Good Standing
Diethyl ether	EPA 8260B_2_1996	S	Good Standing
Diethyl phthalate	EPA 625	NPW	Good Standing
Diethyl phthalate	EPA 8270B_(9/94)	S	Good Standing
Diethyl phthalate	EPA 8270B_(9/94)	NPW	Good Standing
Diethyl phthalate	EPA 8270C_3_1996	S	Good Standing
Diethyl phthalate	EPA 8270C_3_1996	NPW	Good Standing
Diethyl sulfate	EPA 8270B_(9/94)	S	Good Standing
Diethyl sulfate	EPA 8270B_(9/94)	NPW	Good Standing
Diethyl sulfate	EPA 8270C_3_1996	NPW	Good Standing
Diethyl sulfate	EPA 8270C_3_1996	S	Good Standing
Diethylstilbestrol	EPA 8270B_(9/94)	S	Good Standing
Diethylstilbestrol	EPA 8270B_(9/94)	NPW	Good Standing
Diethylstilbestrol	EPA 8270C_3_1996	NPW	Good Standing
Diethylstilbestrol	EPA 8270C_3_1996	S	Good Standing
Dihydrosafrole	EPA 8270B_(9/94)	S	Good Standing
Dihydrosafrole	EPA 8270B_(9/94)	NPW	Good Standing
Dihydrosafrole	EPA 8270C_3_1996	NPW	Good Standing
Dihydrosafrole	EPA 8270C_3_1996	S	Good Standing
Di-isopropylether (DIPE)	EPA 8260B_2_1996	S	Good Standing
Dimethoate	EPA 8270C_3_1996	NPW	Good Standing
Dimethoate	EPA 8270C_3_1996	S	Good Standing
Dimethyl phthalate	EPA 625	NPW	Good Standing
Dimethyl phthalate	EPA 8270B_(9/94)	NPW	Good Standing
Dimethyl phthalate	EPA 8270C_3_1996	NPW	Good Standing
Dimethyl phthalate	EPA 8270C_3_1996	S	Good Standing
Di-n-butyl phthalate	EPA 625	NPW	Good Standing
Di-n-butyl phthalate	EPA 8270B_(9/94)	S	Good Standing
Di-n-butyl phthalate	EPA 8270B_(9/94)	NPW	Good Standing
Di-n-butyl phthalate	EPA 8270C_3_1996	NPW	Good Standing
Di-n-butyl phthalate	EPA 8270C_3_1996	S	Good Standing
Dinocap	EPA 8270C_3_1996	NPW	Good Standing
Dinocap	EPA 8270C_3_1996	S	Good Standing
Di-n-octyl phthalate	EPA 625	NPW	Good Standing
Di-n-octyl phthalate	EPA 8270B_(9/94)	S	Good Standing
Di-n-octyl phthalate	EPA 8270B_(9/94)	NPW	Good Standing
Di-n-octyl phthalate	EPA 8270C_3_1996	NPW	Good Standing
Di-n-octyl phthalate	EPA 8270C_3_1996	S	Good Standing
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 8270C_3_1996	NPW	Good Standing
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 8270C_3_1996	S	Good Standing

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Dioxathion	EPA 8270C_3_1996	S	Good Standing
Diphenyl ether	EPA 8270C_3_1996	NPW	Good Standing
Diphenyl ether	EPA 8270C_3_1996	S	Good Standing
Diphenylamine	EPA 8270B_(9/94)	S	Good Standing
Diphenylamine	EPA 8270B_(9/94)	NPW	Good Standing
Diphenylamine	EPA 8270C_3_1996	NPW	Good Standing
Diphenylamine	EPA 8270C_3_1996	S	Good Standing
Disulfoton	EPA 8270C_3_1996	NPW	Good Standing
Disulfoton	EPA 8270C_3_1996	S	Good Standing
Endosulfan I	EPA 625	NPW	Good Standing
Endosulfan I	EPA 8081B_(11/00)	S	Good Standing
Endosulfan I	EPA 8081B_(11/00)	NPW	Good Standing
Endosulfan I	EPA 8270C_3_1996	NPW	Good Standing
Endosulfan I	EPA 8270C_3_1996	S	Good Standing
Endosulfan II	EPA 625	NPW	Good Standing
Endosulfan II	EPA 8081B_(11/00)	NPW	Good Standing
Endosulfan II	EPA 8081B_(11/00)	S	Good Standing
Endosulfan II	EPA 8270C_3_1996	NPW	Good Standing
Endosulfan II	EPA 8270C_3_1996	S	Good Standing
Endosulfan sulfate	EPA 625	NPW	Good Standing
Endosulfan sulfate	EPA 8081B_(11/00)	S	Good Standing
Endosulfan sulfate	EPA 8081B_(11/00)	NPW	Good Standing
Endrin	EPA 625	NPW	Good Standing
Endrin	EPA 8081B_(11/00)	S	Good Standing
Endrin	EPA 8081B_(11/00)	NPW	Good Standing
Endrin	EPA 8270C_3_1996	NPW	Good Standing
Endrin	EPA 8270C_3_1996	S	Good Standing
Endrin aldehyde	EPA 8081B_(11/00)	S	Good Standing
Endrin aldehyde	EPA 8081B_(11/00)	NPW	Good Standing
Endrin aldehyde	EPA 8270C_3_1996	S	Good Standing
Endrin ketone	EPA 8081B_(11/00)	NPW	Good Standing
Endrin ketone	EPA 8081B_(11/00)	S	Good Standing
Endrin ketone	EPA 8270C_3_1996	NPW	Good Standing
Endrin ketone	EPA 8270C_3_1996	S	Good Standing
Epichlorohydrin (1-Chloro-2,3-epoxypropane)	EPA 624	NPW	Good Standing
Epichlorohydrin (1-Chloro-2,3-epoxypropane)	EPA 8260B_2_1996	S	Good Standing
Epichlorohydrin (1-Chloro-2,3-epoxypropane)	EPA 8260B_2_1996	NPW	Good Standing
EPN	EPA 8270C_3_1996	S	Good Standing
EPN	EPA 8270C_3_1996	NPW	Good Standing
Ethanol	EPA 8260B_2_1996	S	Good Standing
Ethanol	EPA 8260B_2_1996	NPW	Good Standing
Ethion	EPA 8270C_3_1996	S	Good Standing
Ethion	EPA 8270C_3_1996	NPW	Good Standing
Ethyl acetate	EPA 8260B_2_1996	NPW	Good Standing
Ethyl acetate	EPA 8260B_2_1996	S	Good Standing

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
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Outreach Laboratory

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Ethyl carbamate (Urethane)	EPA 8270B_(9/94)	NPW	Good Standing
Ethyl carbamate (Urethane)	EPA 8270B_(9/94)	S	Good Standing
Ethyl carbamate (Urethane)	EPA 8270C_3_1996	NPW	Good Standing
Ethyl carbamate (Urethane)	EPA 8270C_3_1996	S	Good Standing
Ethyl methacrylate	EPA 8260B_2_1996	S	Good Standing
Ethyl methacrylate	EPA 8260B_2_1996	NPW	Good Standing
Ethyl methanesulfonate	EPA 8270B_(9/94)	S	Good Standing
Ethyl methanesulfonate	EPA 8270B_(9/94)	NPW	Good Standing
Ethyl methanesulfonate	EPA 8270C_3_1996	S	Good Standing
Ethyl methanesulfonate	EPA 8270C_3_1996	NPW	Good Standing
Ethyl parathion	EPA 8270C_3_1996	S	Good Standing
Ethyl parathion	EPA 8270C_3_1996	NPW	Good Standing
Ethylbenzene	EPA 624	NPW	Good Standing
Ethylbenzene	EPA 8260B_2_1996	NPW	Good Standing
Ethylbenzene	EPA 8260B_2_1996	S	Good Standing
Ethylene oxide	EPA 8260B_2_1996	NPW	Good Standing
Ethylene oxide	EPA 8260B_2_1996	S	Good Standing
Ethyl-t-butylether (ETBE)	EPA 8260B_2_1996	S	Good Standing
Ethyl-t-butylether (ETBE)	EPA 8260B_2_1996	NPW	Good Standing
Famphur	EPA 8270C_3_1996	NPW	Good Standing
Famphur	EPA 8270C_3_1996	S	Good Standing
Fensulfothion	EPA 8270C_3_1996	NPW	Good Standing
Fensulfothion	EPA 8270C_3_1996	S	Good Standing
Fenthion	EPA 8270C_3_1996	S	Good Standing
Fenthion	EPA 8270C_3_1996	NPW	Good Standing
Fluchloralin	EPA 8270C_3_1996	S	Good Standing
Fluchloralin	EPA 8270C_3_1996	NPW	Good Standing
Fluoranthene	EPA 625	NPW	Good Standing
Fluoranthene	EPA 8270B_(9/94)	S	Good Standing
Fluoranthene	EPA 8270B_(9/94)	NPW	Good Standing
Fluoranthene	EPA 8270C_3_1996	NPW	Good Standing
Fluoranthene	EPA 8270C_3_1996	S	Good Standing
Fluorene	EPA 625	NPW	Good Standing
Fluorene	EPA 8270B_(9/94)	NPW	Good Standing
Fluorene	EPA 8270B_(9/94)	S	Good Standing
Fluorene	EPA 8270C_3_1996	S	Good Standing
Fluorene	EPA 8270C_3_1996	NPW	Good Standing
Fluoride	SM 4500-F» B 20th ED (1998)	NPW	Good Standing
Fluoride	SM 4500-F» C 20th ED (1998)	NPW	Good Standing
Free liquid	EPA 9095A_(12/96)	S	Good Standing
Free liquid	EPA 9095A_(12/96)	NPW	Good Standing
Gallium-67	EPA 901.1	NPW	Good Standing
Gallium-67	EPA 901.1	S	Good Standing
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	EPA 8270C_3_1996	S	Good Standing
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	EPA 8270C_3_1996	NPW	Good Standing

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gamma-Chlordane	EPA 8081B_(11/00)	S	Good Standing
gamma-Chlordane	EPA 8081B_(11/00)	NPW	Good Standing
Gross alpha-beta	EPA 900	NPW	Good Standing
Gross alpha-beta	EPA 900	S	Good Standing
Gross alpha-beta	EPA 9310_(9/86)	NPW	Good Standing
Gross alpha-beta	EPA 9310_(9/86)	S	Good Standing
Gross gamma	EPA 901.1	S	Good Standing
Gross gamma	EPA 901.1	NPW	Good Standing
Gross-alpha	EPA 9310_(9/86)	S	Good Standing
Gross-alpha	EPA 9310_(9/86)	NPW	Suspended
Gross-beta	EPA 9310_(9/86)	S	Good Standing
Gross-beta	EPA 9310_(9/86)	NPW	Good Standing
Hardness	EPA 130.2_1971	NPW	Good Standing
Hardness	SM 2340 C 20th ED (1998)	NPW	Good Standing
Hardness (calc.)	ASTM D1126-86(92)	NPW	Good Standing
Heptachlor	EPA 625	NPW	Good Standing
Heptachlor	EPA 8081B_(11/00)	S	Good Standing
Heptachlor	EPA 8081B_(11/00)	NPW	Good Standing
Heptachlor	EPA 8270C_3_1996	NPW	Good Standing
Heptachlor	EPA 8270C_3_1996	S	Good Standing
Heptachlor epoxide	EPA 625	NPW	Good Standing
Heptachlor epoxide	EPA 8081B_(11/00)	NPW	Good Standing
Heptachlor epoxide	EPA 8081B_(11/00)	S	Good Standing
Heptachlor epoxide	EPA 8270C_3_1996	S	Good Standing
Heptachlor epoxide	EPA 8270C_3_1996	NPW	Good Standing
Hexachlorobenzene	EPA 625	NPW	Good Standing
Hexachlorobenzene	EPA 8270B_(9/94)	S	Good Standing
Hexachlorobenzene	EPA 8270B_(9/94)	NPW	Good Standing
Hexachlorobenzene	EPA 8270C_3_1996	S	Good Standing
Hexachlorobutadiene	EPA 625	NPW	Good Standing
Hexachlorobutadiene	EPA 8260B_2_1996	S	Good Standing
Hexachlorobutadiene	EPA 8260B_2_1996	NPW	Good Standing
Hexachlorobutadiene	EPA 8270B_(9/94)	NPW	Good Standing
Hexachlorobutadiene	EPA 8270B_(9/94)	S	Good Standing
Hexachlorobutadiene	EPA 8270C_3_1996	NPW	Good Standing
Hexachlorobutadiene	EPA 8270C_3_1996	S	Good Standing
Hexachlorocyclopentadiene	EPA 625	NPW	Good Standing
Hexachlorocyclopentadiene	EPA 8270B_(9/94)	S	Good Standing
Hexachlorocyclopentadiene	EPA 8270B_(9/94)	NPW	Good Standing
Hexachlorocyclopentadiene	EPA 8270C_3_1996	S	Good Standing
Hexachloroethane	EPA 625	NPW	Good Standing
Hexachloroethane	EPA 8260B_2_1996	S	Good Standing
Hexachloroethane	EPA 8260B_2_1996	NPW	Good Standing
Hexachloroethane	EPA 8270B_(9/94)	S	Good Standing
Hexachloroethane	EPA 8270B_(9/94)	NPW	Good Standing

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program

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OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
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Hexachloroethane	EPA 8270C_3_1996	S	Good Standing
Hexachloroethane	EPA 8270C_3_1996	NPW	Good Standing
Hexachlorophene	EPA 8270B_(9/94)	NPW	Good Standing
Hexachlorophene	EPA 8270B_(9/94)	S	Good Standing
Hexachlorophene	EPA 8270C_3_1996	NPW	Good Standing
Hexachlorophene	EPA 8270C_3_1996	S	Good Standing
Hexachloropropene	EPA 625	NPW	Good Standing
Hexachloropropene	EPA 8270B_(9/94)	S	Good Standing
Hexachloropropene	EPA 8270B_(9/94)	NPW	Good Standing
Hexachloropropene	EPA 8270C_3_1996	S	Good Standing
Hexachloropropene	EPA 8270C_3_1996	NPW	Good Standing
Hexamethylphosphoramide (HMPA)	EPA 8270C_3_1996	S	Good Standing
Hexamethylphosphoramide (HMPA)	EPA 8270C_3_1996	NPW	Good Standing
Hydroquinone	EPA 8270B_(9/94)	NPW	Good Standing
Hydroquinone	EPA 8270B_(9/94)	S	Good Standing
Hydroquinone	EPA 8270C_3_1996	NPW	Good Standing
Hydroquinone	EPA 8270C_3_1996	S	Good Standing
Ignitability	EPA 1010_(9/86)	NPW	Good Standing
Ignitability	EPA 1010_(9/86)	S	Good Standing
Indeno(1,2,3-cd) pyrene	EPA 625	NPW	Good Standing
Indeno(1,2,3-cd) pyrene	EPA 8270C_3_1996	S	Good Standing
Indeno(1,2,3-cd) pyrene	EPA 8270C_3_1996	NPW	Good Standing
Indium-113m	EPA 901.1	S	Good Standing
Indium-113m	EPA 901.1	NPW	Good Standing
Iodine-123	EPA 901.1	NPW	Good Standing
Iodine-123	EPA 901.1	S	Good Standing
Iodine-125	EPA 901.1	NPW	Good Standing
Iodine-125	EPA 901.1	S	Good Standing
Iodomethane (Methyl iodide)	EPA 8260B_2_1996	S	Good Standing
Iodomethane (Methyl iodide)	EPA 8260B_2_1996	NPW	Good Standing
Iridium-192	EPA 901.1	S	Good Standing
Iridium-192	EPA 901.1	NPW	Good Standing
Iron	EPA 200.7_5_1998	NPW	Good Standing
Iron	EPA 6010B_2_1996	NPW	Good Standing
Iron	EPA 6010B_2_1996	S	Good Standing
Iron-55	EPA 901.1	S	Good Standing
Iron-55	EPA 901.1	NPW	Good Standing
Iron-59	EPA 901.1	S	Good Standing
Iron-59	EPA 901.1	NPW	Good Standing
Isobutyl alcohol (2-Methyl-1-propanol)	EPA 8260B_2_1996	NPW	Good Standing
Isobutyl alcohol (2-Methyl-1-propanol)	EPA 8260B_2_1996	S	Good Standing
Isodrin	EPA 8270C_3_1996	NPW	Good Standing
Isodrin	EPA 8270C_3_1996	S	Good Standing
Isophorone	EPA 625	NPW	Good Standing
Isophorone	EPA 8270B_(9/94)	S	Good Standing

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program

OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY
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Scope of Accreditation

Outreach Laboratory

311 North Aspen
Broken Arrow, OK 74012
(918)-251-2515

Laboratory ID: OK00922
State Lab ID: 9517
Clean Water Program

Certificate Number: 2009-105
Date of Issue: 9/1/2009
Expiration Date: 8/31/2010

Has demonstrated the capability to analyze environmental samples in accordance with Oklahoma Rules 252:301 and is hereby granted CERTIFICATION FOR:

Isophorone	EPA 8270B_(9/94)	NPW	Good Standing
Isophorone	EPA 8270C_3_1996	NPW	Good Standing
Isophorone	EPA 8270C_3_1996	S	Good Standing
Isopropylbenzene	EPA 8260B_2_1996	NPW	Good Standing
Isopropylbenzene	EPA 8260B_2_1996	S	Good Standing
Isosafrole	EPA 8270B_(9/94)	NPW	Good Standing
Isosafrole	EPA 8270B_(9/94)	S	Good Standing
Isosafrole	EPA 8270C_3_1996	S	Good Standing
Isosafrole	EPA 8270C_3_1996	NPW	Good Standing
Kepone	EPA 8270C_3_1996	S	Good Standing
Kepone	EPA 8270C_3_1996	NPW	Good Standing
Kjeldahl nitrogen	SM 4500-Norg B 20th ED (1998)	NPW	Good Standing
Kjeldahl nitrogen	SM 4500-Norg B 20th ED (1998)	S	Good Standing
Kjeldahl nitrogen - total	EPA 351.3_1978	S	Good Standing
Kjeldahl nitrogen - total	EPA 351.3_1978	NPW	Good Standing
Krypton-85	EPA 901.1	S	Good Standing
Krypton-85	EPA 901.1	NPW	Good Standing
Lead	EPA 200.7_5_1998	NPW	Good Standing
Lead	EPA 6010B_2_1996	S	Good Standing
Lead	EPA 6010B_2_1996	NPW	Good Standing
Lead-210	EPA 901	NPW	Good Standing
Lead-210	EPA 901	S	Good Standing
Lead-210	EPA 901.1	S	Good Standing
Lead-210	EPA 901.1	NPW	Good Standing
Leptophos	EPA 8270C_3_1996	NPW	Good Standing
Leptophos	EPA 8270C_3_1996	S	Good Standing
m+p-xylene	EPA 8260B_2_1996	S	Good Standing
m+p-xylene	EPA 8260B_2_1996	NPW	Good Standing
Magnesium	EPA 200.7_5_1998	NPW	Good Standing
Magnesium	EPA 6010B_2_1996	NPW	Good Standing
Magnesium	EPA 6010B_2_1996	S	Good Standing
Malathion	EPA 8270C_3_1996	S	Good Standing
Malathion	EPA 8270C_3_1996	NPW	Good Standing
Maleic anhydride	EPA 8270B_(9/94)	S	Good Standing
Maleic anhydride	EPA 8270B_(9/94)	NPW	Good Standing
Maleic anhydride	EPA 8270C_3_1996	NPW	Good Standing
Maleic anhydride	EPA 8270C_3_1996	S	Good Standing
Malononitrile	EPA 8260B_2_1996	S	Good Standing
Malononitrile	EPA 8260B_2_1996	NPW	Good Standing
Manganese	EPA 200.7_5_1998	NPW	Good Standing
Manganese	EPA 6010B_2_1996	S	Good Standing
Manganese	EPA 6010B_2_1996	NPW	Good Standing
Manganese-54	EPA 901	S	Good Standing
Manganese-54	EPA 901	NPW	Good Standing
Manganese-54	EPA 901.1	NPW	Good Standing

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program

Scope of Accreditation

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
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Manganese-54	EPA 901.1	S	Good Standing
Mercury	EPA 245.1_3_1994	NPW	Good Standing
Mercury	EPA 7470A_1_1994	NPW	Good Standing
Mercury	EPA 7471B_(1/98)	S	Good Standing
Mestranol	EPA 8270B_(9/94)	S	Good Standing
Mestranol	EPA 8270B_(9/94)	NPW	Good Standing
Mestranol	EPA 8270C_3_1996	S	Good Standing
Mestranol	EPA 8270C_3_1996	NPW	Good Standing
Methacrylonitrile	EPA 8260B_2_1996	NPW	Good Standing
Methacrylonitrile	EPA 8260B_2_1996	S	Good Standing
Methanol	EPA 8260B_2_1996	S	Good Standing
Methanol	EPA 8260B_2_1996	NPW	Good Standing
Methapyrilene	EPA 8270B_(9/94)	NPW	Good Standing
Methapyrilene	EPA 8270B_(9/94)	S	Good Standing
Methapyrilene	EPA 8270C_3_1996	NPW	Good Standing
Methapyrilene	EPA 8270C_3_1996	S	Good Standing
Methoxychlor	EPA 625	NPW	Good Standing
Methoxychlor	EPA 8081B_(11/00)	NPW	Good Standing
Methoxychlor	EPA 8081B_(11/00)	S	Good Standing
Methoxychlor	EPA 8270C_3_1996	S	Good Standing
Methoxychlor	EPA 8270C_3_1996	NPW	Good Standing
Methyl acetate	EPA 8260B_2_1996	S	Good Standing
Methyl acetate	EPA 8260B_2_1996	NPW	Good Standing
Methyl bromide (Bromomethane)	EPA 624	NPW	Good Standing
Methyl bromide (Bromomethane)	EPA 8260B_2_1996	NPW	Good Standing
Methyl bromide (Bromomethane)	EPA 8260B_2_1996	S	Good Standing
Methyl chloride (Chloromethane)	EPA 624	NPW	Good Standing
Methyl chloride (Chloromethane)	EPA 8260B_2_1996	NPW	Good Standing
Methyl chloride (Chloromethane)	EPA 8260B_2_1996	S	Good Standing
Methyl methacrylate	EPA 8260B_2_1996	NPW	Good Standing
Methyl methacrylate	EPA 8260B_2_1996	S	Good Standing
Methyl methanesulfonate	EPA 8270B_(9/94)	S	Good Standing
Methyl methanesulfonate	EPA 8270B_(9/94)	NPW	Good Standing
Methyl methanesulfonate	EPA 8270C_3_1996	NPW	Good Standing
Methyl methanesulfonate	EPA 8270C_3_1996	S	Good Standing
Methyl parathion (Parathion, methyl)	EPA 8270C_3_1996	S	Good Standing
Methyl parathion (Parathion, methyl)	EPA 8270C_3_1996	NPW	Good Standing
Methyl tert-butyl ether (MTBE)	EPA 624	NPW	Good Standing
Methyl tert-butyl ether (MTBE)	EPA 8260B_2_1996	S	Good Standing
Methyl tert-butyl ether (MTBE)	EPA 8260B_2_1996	NPW	Good Standing
Methylcyclohexane	EPA 8260B_2_1996	S	Good Standing
Methylcyclohexane	EPA 8260B_2_1996	NPW	Good Standing
Methylene chloride	EPA 624	NPW	Good Standing
Methylene chloride	EPA 8260B_2_1996	S	Good Standing
Methylene chloride	EPA 8260B_2_1996	NPW	Good Standing

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Mevinphos	EPA 8270C_3_1996	S	Good Standing
Mevinphos	EPA 8270C_3_1996	NPW	Good Standing
Mexacarbate	EPA 8270C_3_1996	S	Good Standing
Mexacarbate	EPA 8270C_3_1996	NPW	Good Standing
Mirex	EPA 8270C_3_1996	S	Good Standing
Mirex	EPA 8270C_3_1996	NPW	Good Standing
Molybdenum	EPA 200.7_5_1998	NPW	Good Standing
Molybdenum	EPA 6010B_2_1996	S	Good Standing
Molybdenum	EPA 6010B_2_1996	NPW	Good Standing
Molybdenum-99	EPA 901.1	S	Good Standing
Molybdenum-99	EPA 901.1	NPW	Good Standing
Monocrotophos	EPA 8270C_3_1996	NPW	Good Standing
Monocrotophos	EPA 8270C_3_1996	S	Good Standing
m-Xylene	EPA 8260B_2_1996	NPW	Good Standing
m-Xylene	EPA 8260B_2_1996	S	Good Standing
n, n-dimethyl formamide	EPA 8270C_3_1996	NPW	Good Standing
n, n-dimethyl formamide	EPA 8270C_3_1996	S	Good Standing
Naled	EPA 8270C_3_1996	S	Good Standing
Naled	EPA 8270C_3_1996	NPW	Good Standing
Naphthalene	EPA 624	NPW	Good Standing
Naphthalene	EPA 625	NPW	Good Standing
Naphthalene	EPA 8260B_2_1996	NPW	Good Standing
Naphthalene	EPA 8260B_2_1996	S	Good Standing
Naphthalene	EPA 8270B_(9/94)	S	Good Standing
Naphthalene	EPA 8270B_(9/94)	NPW	Good Standing
Naphthalene	EPA 8270C_3_1996	NPW	Good Standing
Naphthalene	EPA 8270C_3_1996	S	Good Standing
n-Butyl alcohol	EPA 8260B_2_1996	S	Good Standing
n-Butyl alcohol	EPA 8260B_2_1996	NPW	Good Standing
n-Butylbenzene	EPA 8260B_2_1996	S	Good Standing
n-Butylbenzene	EPA 8260B_2_1996	NPW	Good Standing
n-Decane	EPA 625	NPW	Good Standing
n-Decane	EPA 8270C_3_1996	NPW	Good Standing
n-Decane	EPA 8270C_3_1996	S	Good Standing
n-Docosane	EPA 625	NPW	Good Standing
n-Dodecane	EPA 625	NPW	Good Standing
n-Eicosane	EPA 625	NPW	Good Standing
n-Hexadecane	EPA 625	NPW	Good Standing
Nickel	EPA 200.7_5_1998	NPW	Good Standing
Nickel	EPA 6010B_2_1996	NPW	Good Standing
Nickel	EPA 6010B_2_1996	S	Good Standing
Nicotine	EPA 8270B_(9/94)	S	Good Standing
Nicotine	EPA 8270B_(9/94)	NPW	Good Standing
Nicotine	EPA 8270C_3_1996	NPW	Good Standing
Nicotine	EPA 8270C_3_1996	S	Good Standing

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
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Nitrate	EPA 9210_0_1996	NPW	Good Standing
Nitrate	EPA 9210_0_1996	S	Good Standing
Nitrate	SM 4500-NO3» D 20th ED (1998)	NPW	Good Standing
Nitrate	SM 4500-NO3» D 20th ED (1998)	S	Good Standing
Nitrate as N	EPA 352.1_1971	S	Good Standing
Nitrate as N	EPA 352.1_1971	NPW	Good Standing
Nitrite	SM 4500-NO3» E 20th ED (1998)	NPW	Good Standing
Nitrobenzene	EPA 624	NPW	Good Standing
Nitrobenzene	EPA 625	NPW	Good Standing
Nitrobenzene	EPA 8260B_2_1996	S	Good Standing
Nitrobenzene	EPA 8260B_2_1996	NPW	Good Standing
Nitrobenzene	EPA 8270B_(9/94)	S	Good Standing
Nitrobenzene	EPA 8270B_(9/94)	NPW	Good Standing
Nitrobenzene	EPA 8270C_3_1996	NPW	Good Standing
Nitrobenzene	EPA 8270C_3_1996	S	Good Standing
Nitrofen	EPA 8270C_3_1996	S	Good Standing
Nitrofen	EPA 8270C_3_1996	NPW	Good Standing
Nitroquinoline-1-oxide	EPA 8270B_(9/94)	NPW	Good Standing
Nitroquinoline-1-oxide	EPA 8270B_(9/94)	S	Good Standing
Nitroquinoline-1-oxide	EPA 8270C_3_1996	NPW	Good Standing
Nitroquinoline-1-oxide	EPA 8270C_3_1996	S	Good Standing
n-Nitrosodiethylamine	EPA 625	NPW	Good Standing
n-Nitrosodiethylamine	EPA 8270B_(9/94)	S	Good Standing
n-Nitrosodiethylamine	EPA 8270B_(9/94)	NPW	Good Standing
n-Nitrosodiethylamine	EPA 8270C_3_1996	S	Good Standing
n-Nitrosodiethylamine	EPA 8270C_3_1996	NPW	Good Standing
n-Nitrosodimethylamine	EPA 625	NPW	Good Standing
n-Nitrosodimethylamine	EPA 8270B_(9/94)	S	Good Standing
n-Nitrosodimethylamine	EPA 8270B_(9/94)	NPW	Good Standing
n-Nitrosodimethylamine	EPA 8270C_3_1996	S	Good Standing
n-Nitrosodimethylamine	EPA 8270C_3_1996	NPW	Good Standing
n-Nitroso-di-n-butylamine	EPA 625	NPW	Good Standing
n-Nitroso-di-n-butylamine	EPA 8260B_2_1996	NPW	Good Standing
n-Nitroso-di-n-butylamine	EPA 8260B_2_1996	S	Good Standing
n-Nitroso-di-n-butylamine	EPA 8270B_(9/94)	S	Good Standing
n-Nitroso-di-n-butylamine	EPA 8270B_(9/94)	NPW	Good Standing
n-Nitroso-di-n-butylamine	EPA 8270C_3_1996	NPW	Good Standing
n-Nitroso-di-n-butylamine	EPA 8270C_3_1996	S	Good Standing
n-Nitrosodi-n-propylamine	EPA 625	NPW	Good Standing
n-Nitrosodi-n-propylamine	EPA 8270B_(9/94)	S	Good Standing
n-Nitrosodi-n-propylamine	EPA 8270B_(9/94)	NPW	Good Standing
n-Nitrosodi-n-propylamine	EPA 8270C_3_1996	S	Good Standing
n-Nitrosodi-n-propylamine	EPA 8270C_3_1996	NPW	Good Standing
n-Nitrosodiphenylamine	EPA 625	NPW	Good Standing
n-Nitrosodiphenylamine	EPA 8270B_(9/94)	NPW	Good Standing

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DEPARTMENT OF ENVIRONMENTAL QUALITY
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Oklahoma Department of Environmental Quality
Laboratory Accreditation Program
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Outreach Laboratory
311 North Aspen
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(918)-251-2515

Laboratory ID: OK00922
State Lab ID: 9517
Clean Water Program

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Expiration Date: 8/31/2010

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n-Nitrosodiphenylamine	EPA 8270B_(9/94)	S	Good Standing
n-Nitrosodiphenylamine	EPA 8270C_3_1996	NPW	Good Standing
n-Nitrosodiphenylamine	EPA 8270C_3_1996	S	Good Standing
n-Nitrosodipropylamine	EPA 8270C_3_1996	S	Good Standing
n-Nitrosodipropylamine	EPA 8270C_3_1996	NPW	Good Standing
n-Nitrosomethylethalamine	EPA 8270B_(9/94)	S	Good Standing
n-Nitrosomethylethalamine	EPA 8270B_(9/94)	NPW	Good Standing
n-Nitrosomethylethalamine	EPA 8270C_3_1996	S	Good Standing
n-Nitrosomethylethalamine	EPA 8270C_3_1996	NPW	Good Standing
n-Nitrosomorpholine	EPA 8270B_(9/94)	S	Good Standing
n-Nitrosomorpholine	EPA 8270B_(9/94)	NPW	Good Standing
n-Nitrosomorpholine	EPA 8270C_3_1996	S	Good Standing
n-Nitrosomorpholine	EPA 8270C_3_1996	NPW	Good Standing
n-Nitrosopiperidine	EPA 8270B_(9/94)	NPW	Good Standing
n-Nitrosopiperidine	EPA 8270B_(9/94)	S	Good Standing
n-Nitrosopiperidine	EPA 8270C_3_1996	S	Good Standing
n-Nitrosopiperidine	EPA 8270C_3_1996	NPW	Good Standing
n-Nitrosopyrrolidine	EPA 8270B_(9/94)	S	Good Standing
n-Nitrosopyrrolidine	EPA 8270B_(9/94)	NPW	Good Standing
n-Nitrosopyrrolidine	EPA 8270C_3_1996	NPW	Good Standing
n-Nitrosopyrrolidine	EPA 8270C_3_1996	S	Good Standing
n-Octadecane	EPA 625	NPW	Good Standing
n-Octadecane	EPA 8270C_3_1996	S	Good Standing
n-Octadecane	EPA 8270C_3_1996	NPW	Good Standing
n-Propylamine	EPA 8260B_2_1996	S	Good Standing
n-Propylamine	EPA 8260B_2_1996	NPW	Good Standing
n-Tetradecane	EPA 625	NPW	Good Standing
o,o,o-Triethyl phosphorothioate	EPA 8270C_3_1996	NPW	Good Standing
o,o,o-Triethyl phosphorothioate	EPA 8270C_3_1996	S	Good Standing
o-Anisidine	EPA 8270B_(9/94)	S	Good Standing
o-Anisidine	EPA 8270B_(9/94)	NPW	Good Standing
o-Anisidine	EPA 8270C_3_1996	S	Good Standing
o-Anisidine	EPA 8270C_3_1996	NPW	Good Standing
Octamethyl pyrophosphoramide	EPA 8270C_3_1996	S	Good Standing
Octamethyl pyrophosphoramide	EPA 8270C_3_1996	NPW	Good Standing
Oil & Grease	EPA 1664A	NPW	Good Standing
Oil & Grease	SM 5520 B 20th ED (1998)	NPW	Good Standing
Orthophosphate as P	SM 4500-P E 20th ED (1998)	NPW	Good Standing
o-Toluidine	EPA 8260B_2_1996	S	Good Standing
o-Toluidine	EPA 8260B_2_1996	NPW	Good Standing
o-Toluidine	EPA 8270B_(9/94)	S	Good Standing
o-Toluidine	EPA 8270B_(9/94)	NPW	Good Standing
o-Toluidine	EPA 8270C_3_1996	NPW	Good Standing
o-Toluidine	EPA 8270C_3_1996	S	Good Standing
Oxygen, dissolved	SM 4500-O G 20th ED (1998)	NPW	Good Standing

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OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
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Oxygen, dissolved	SM 4500-O G 21st ED (2005)	NPW	Good Standing
o-Xylene	EPA 8260B_2_1996	NPW	Good Standing
o-Xylene	EPA 8260B_2_1996	S	Good Standing
Paraldehyde	EPA 8260B_2_1996	NPW	Good Standing
Paraldehyde	EPA 8260B_2_1996	S	Good Standing
Parathion	EPA 8270C_3_1996	S	Good Standing
Parathion	EPA 8270C_3_1996	NPW	Good Standing
p-Benzoquinone	EPA 8270B_(9/94)	S	Good Standing
p-Benzoquinone	EPA 8270C_3_1996	NPW	Good Standing
p-Benzoquinone	EPA 8270C_3_1996	S	Good Standing
p-Cresidine	EPA 8270B_(9/94)	NPW	Good Standing
p-Cresidine	EPA 8270B_(9/94)	S	Good Standing
p-Cresidine	EPA 8270C_3_1996	S	Good Standing
p-Cresidine	EPA 8270C_3_1996	NPW	Good Standing
p-Dioxane	EPA 624	NPW	Good Standing
p-Dioxane	EPA 8260B_2_1996	S	Good Standing
p-Dioxane	EPA 8260B_2_1996	NPW	Good Standing
Pentachlorobenzene	EPA 8270B_(9/94)	NPW	Good Standing
Pentachlorobenzene	EPA 8270B_(9/94)	S	Good Standing
Pentachlorobenzene	EPA 8270C_3_1996	NPW	Good Standing
Pentachlorobenzene	EPA 8270C_3_1996	S	Good Standing
Pentachloroethane	EPA 625	NPW	Good Standing
Pentachloroethane	EPA 8260B_2_1996	S	Good Standing
Pentachloroethane	EPA 8260B_2_1996	NPW	Good Standing
Pentachloronitrobenzene	EPA 8270B_(9/94)	S	Good Standing
Pentachloronitrobenzene	EPA 8270B_(9/94)	NPW	Good Standing
Pentachloronitrobenzene	EPA 8270C_3_1996	NPW	Good Standing
Pentachloronitrobenzene	EPA 8270C_3_1996	S	Good Standing
Pentachlorophenol	EPA 625	NPW	Good Standing
Pentachlorophenol	EPA 8270B_(9/94)	S	Good Standing
Pentachlorophenol	EPA 8270B_(9/94)	NPW	Good Standing
Pentachlorophenol	EPA 8270C_3_1996	S	Good Standing
Pentachlorophenol	EPA 8270C_3_1996	NPW	Good Standing
pH	EPA 9040A_(9/94)	NPW	Good Standing
pH	EPA 9045D	S	Good Standing
pH	SM 4500-H+ B 20th ED (1998)	S	Good Standing
pH	SM 4500-H+ B 20th ED (1998)	NPW	Good Standing
Phenacetin	EPA 8270B_(9/94)	S	Good Standing
Phenacetin	EPA 8270B_(9/94)	NPW	Good Standing
Phenacetin	EPA 8270C_3_1996	S	Good Standing
Phenacetin	EPA 8270C_3_1996	NPW	Good Standing
Phenanthrene	EPA 625	NPW	Good Standing
Phenanthrene	EPA 8270B_(9/94)	NPW	Good Standing
Phenanthrene	EPA 8270B_(9/94)	S	Good Standing
Phenanthrene	EPA 8270C_3_1996	NPW	Good Standing

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Phenanthrene	EPA 8270C_3_1996	S	Good Standing
Phenobarbital	EPA 8270B_(9/94)	NPW	Good Standing
Phenobarbital	EPA 8270B_(9/94)	S	Good Standing
Phenobarbital	EPA 8270C_3_1996	NPW	Good Standing
Phenobarbital	EPA 8270C_3_1996	S	Good Standing
Phenol	EPA 625	NPW	Good Standing
Phenol	EPA 8270B_(9/94)	S	Good Standing
Phenol	EPA 8270B_(9/94)	NPW	Good Standing
Phenol	EPA 8270C_3_1996	NPW	Good Standing
Phenol	EPA 8270C_3_1996	S	Good Standing
Phorate	EPA 8270C_3_1996	S	Good Standing
Phorate	EPA 8270C_3_1996	NPW	Good Standing
Phosalone	EPA 8270C_3_1996	NPW	Good Standing
Phosalone	EPA 8270C_3_1996	S	Good Standing
Phosmet (Imidan)	EPA 8270C_3_1996	S	Good Standing
Phosmet (Imidan)	EPA 8270C_3_1996	NPW	Good Standing
Phosphamidon	EPA 8270C_3_1996	NPW	Good Standing
Phosphamidon	EPA 8270C_3_1996	S	Good Standing
Phosphorus, total	EPA 6010B_2_1996	S	Good Standing
Phosphorus, total	EPA 6010B_2_1996	S	Good Standing
Phosphorus, total	EPA 6010B_2_1996	NPW	Good Standing
Phosphorus, total	SM 4500-P B 5 20th ED (1998)	NPW	Good Standing
Phosphorus, total	SM 4500-P E 20th ED (1998)	NPW	Good Standing
Phthalic anhydride	EPA 8270B_(9/94)	NPW	Good Standing
Phthalic anhydride	EPA 8270B_(9/94)	S	Good Standing
Phthalic anhydride	EPA 8270C_3_1996	NPW	Good Standing
Phthalic anhydride	EPA 8270C_3_1996	S	Good Standing
Piperonyl sulfoxide	EPA 8270B_(9/94)	S	Good Standing
Piperonyl sulfoxide	EPA 8270B_(9/94)	NPW	Good Standing
Piperonyl sulfoxide	EPA 8270C_3_1996	NPW	Good Standing
Piperonyl sulfoxide	EPA 8270C_3_1996	S	Good Standing
p-Isopropyltoluene	EPA 624	NPW	Good Standing
p-Isopropyltoluene	EPA 8260B_2_1996	NPW	Good Standing
p-Isopropyltoluene	EPA 8260B_2_1996	S	Good Standing
Potassium	EPA 200.7_5_1998	NPW	Good Standing
Potassium	EPA 6010B_2_1996	NPW	Good Standing
Potassium	EPA 6010B_2_1996	S	Good Standing
Pronamide (Kerb)	EPA 8270B_(9/94)	NPW	Good Standing
Pronamide (Kerb)	EPA 8270B_(9/94)	S	Good Standing
Pronamide (Kerb)	EPA 8270C_3_1996	S	Good Standing
Pronamide (Kerb)	EPA 8270C_3_1996	NPW	Good Standing
Propargyl alcohol	EPA 8260B_2_1996	NPW	Good Standing
Propionitrile (Ethyl cyanide)	EPA 8260B_2_1996	NPW	Good Standing
Propylthiouracil	EPA 8270B_(9/94)	S	Good Standing
Propylthiouracil	EPA 8270B_(9/94)	NPW	Good Standing

Oklahoma Department of Environmental Quality
Laboratory Accreditation Program

Scope of Accreditation

OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY
...for a clean, attractive, prosperous Oklahoma

Outreach Laboratory

311 North Aspen
Broken Arrow, OK 74012
(918)-251-2515

Laboratory ID: OK00922
State Lab ID: 9517
Clean Water Program

Certificate Number: 2009-105
Date of Issue: 9/1/2009
Expiration Date: 8/31/2010

Has demonstrated the capability to analyze environmental samples in accordance with Oklahoma Rules 252:301 and is hereby granted CERTIFICATION FOR:

Propylthiouracil	EPA 8270C_3_1996	NPW	Good Standing
Propylthiouracil	EPA 8270C_3_1996	S	Good Standing
p-Xylene	EPA 8260B_2_1996	NPW	Good Standing
p-Xylene	EPA 8260B_2_1996	S	Good Standing
Pyrene	EPA 625	NPW	Good Standing
Pyrene	EPA 8270B_(9/94)	NPW	Good Standing
Pyrene	EPA 8270B_(9/94)	S	Good Standing
Pyrene	EPA 8270C_3_1996	NPW	Good Standing
Pyrene	EPA 8270C_3_1996	S	Good Standing
Pyridine	EPA 625	NPW	Good Standing
Pyridine	EPA 8260B_2_1996	NPW	Good Standing
Pyridine	EPA 8260B_2_1996	S	Good Standing
Pyridine	EPA 8270B_(9/94)	NPW	Good Standing
Pyridine	EPA 8270B_(9/94)	S	Good Standing
Pyridine	EPA 8270C_3_1996	S	Good Standing
Pyridine	EPA 8270C_3_1996	NPW	Good Standing
Radioactive cesium	EPA 901.1	S	Good Standing
Radioactive cesium	EPA 901.1	NPW	Good Standing
Radioactive iodine (iodine-131)	EPA 901.1	S	Good Standing
Radioactive iodine (iodine-131)	EPA 901.1	NPW	Good Standing
Radium-224	EPA 9315_(9/86)	S	Good Standing
Radium-224	EPA 9315_(9/86)	NPW	Good Standing
Radium-226	EPA 903	S	Good Standing
Radium-226	EPA 903	NPW	Good Standing
Radium-226	EPA 9315_(9/86)	S	Good Standing
Radium-226	EPA 9315_(9/86)	NPW	Good Standing
Radium-226	EPA 9320_(9/86)	NPW	Good Standing
Radium-226	EPA 9320_(9/86)	S	Good Standing
Radium-226	SM 18/19thED 305	S	Good Standing
Radium-226	SM 18/19thED 305	NPW	Good Standing
Radium-228	EPA 904	NPW	Good Standing
Radium-228	EPA 9315_(9/86)	S	Good Standing
Radium-228	EPA 9315_(9/86)	NPW	Good Standing
Radium-228	EPA 9320_(9/86)	NPW	Good Standing
Radium-228	EPA 9320_(9/86)	S	Good Standing
Reactive sulfide	EPA 7.3.3.2_3_1996	NPW	Good Standing
Reactive sulfide	EPA 7.3.3.2_3_1996	S	Good Standing
Residue-filterable (TDS)	SM 2540 C 20th ED (1998)	NPW	Good Standing
Residue-nonfilterable (TSS)	SM 2540 D 20th ED (1998)	NPW	Good Standing
Residue-total	SM 2540 B 20th ED (1998)	NPW	Good Standing
Residue-volatile	EPA 160.4	NPW	Good Standing
Resorcinol	EPA 8270B_(9/94)	NPW	Good Standing
Resorcinol	EPA 8270B_(9/94)	S	Good Standing
Resorcinol	EPA 8270C_3_1996	S	Good Standing
Resorcinol	EPA 8270C_3_1996	NPW	Good Standing

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Safrole	EPA 8260B_2_1996	NPW	Good Standing
Safrole	EPA 8260B_2_1996	S	Good Standing
Safrole	EPA 8270B_(9/94)	NPW	Good Standing
Safrole	EPA 8270B_(9/94)	S	Good Standing
Safrole	EPA 8270C_3_1996	S	Good Standing
Safrole	EPA 8270C_3_1996	NPW	Good Standing
sec-Butylbenzene	EPA 8260B_2_1996	NPW	Good Standing
sec-Butylbenzene	EPA 8260B_2_1996	S	Good Standing
Selenium	EPA 200.7_5_1998	NPW	Good Standing
Selenium	EPA 6010B_2_1996	NPW	Good Standing
Selenium	EPA 6010B_2_1996	S	Good Standing
Selenium-75	EPA 901.1	NPW	Good Standing
Selenium-75	EPA 901.1	S	Good Standing
Silica as SiO2	EPA 200.7_5_1998	NPW	Good Standing
Silica as SiO2	EPA 6010B_2_1996	S	Good Standing
Silica as SiO2	EPA 6010B_2_1996	NPW	Good Standing
Silica-dissolved	EPA 200.7_5_1998	NPW	Good Standing
Silica-dissolved	EPA 300.0	NPW	Good Standing
Silicon	EPA 6010B_2_1996	NPW	Good Standing
Silicon	EPA 6010B_2_1996	S	Good Standing
Silver	EPA 200.7_5_1998	NPW	Good Standing
Silver	EPA 6010B_2_1996	NPW	Good Standing
Silver	EPA 6010B_2_1996	S	Good Standing
Silvex (2,4,5-TP)	EPA 8151A_(1/98)	S	Good Standing
Sodium	EPA 200.7_5_1998	NPW	Good Standing
Sodium	EPA 6010B_2_1996	NPW	Good Standing
Sodium	EPA 6010B_2_1996	S	Good Standing
Strontium	EPA 6010B_2_1996	NPW	Good Standing
Strontium	EPA 6010B_2_1996	S	Good Standing
Strontium-89, 90	EPA 905	NPW	Good Standing
Strontium-90	EPA 905	NPW	Good Standing
Strychnine	EPA 8270B_(9/94)	S	Good Standing
Strychnine	EPA 8270B_(9/94)	NPW	Good Standing
Strychnine	EPA 8270C_3_1996	S	Good Standing
Strychnine	EPA 8270C_3_1996	NPW	Good Standing
Styrene	EPA 624	NPW	Good Standing
Styrene	EPA 8260B_2_1996	NPW	Good Standing
Styrene	EPA 8260B_2_1996	S	Good Standing
Sulfallate	EPA 8270C_3_1996	NPW	Good Standing
Sulfallate	EPA 8270C_3_1996	S	Good Standing
Sulfate	ASTM D516-90	NPW	Good Standing
Sulfide	EPA 376.1_1978	S	Good Standing
Sulfide	EPA 376.1_1978	NPW	Good Standing
Sulfide	SM 4500-S2» F 20th ED (1998)	NPW	Good Standing
Synthetic Precipitation Leaching Procedure (SPLP)	EPA 1312_0_1994	NPW	Good Standing

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Synthetic Precipitation Leaching Procedure (SPLP)	EPA 1312_0_1994	S	Good Standing
T-amylmethylether (TAME)	EPA 8260B_2_1996	NPW	Good Standing
T-amylmethylether (TAME)	EPA 8260B_2_1996	S	Good Standing
Terbufos	EPA 8270C_3_1996	S	Good Standing
Terbufos	EPA 8270C_3_1996	NPW	Good Standing
tert-Butyl alcohol	EPA 8260B_2_1996	S	Good Standing
tert-Butyl alcohol	EPA 8260B_2_1996	NPW	Good Standing
tert-Butylbenzene	EPA 8260B_2_1996	S	Good Standing
tert-Butylbenzene	EPA 8260B_2_1996	NPW	Good Standing
Tetrachloroethylene (Perchloroethylene)	EPA 624	NPW	Good Standing
Tetrachloroethylene (Perchloroethylene)	EPA 8260B_2_1996	NPW	Good Standing
Tetrachloroethylene (Perchloroethylene)	EPA 8260B_2_1996	S	Good Standing
Tetrachlorvinphos (Stirophos, Gardona)	EPA 8270C_3_1996	S	Good Standing
Tetrachlorvinphos (Stirophos, Gardona)	EPA 8270C_3_1996	NPW	Good Standing
Tetraethyl dithiopyrophosphate	EPA 8270C_3_1996	S	Good Standing
Tetraethyl dithiopyrophosphate	EPA 8270C_3_1996	NPW	Good Standing
Tetraethyl pyrophosphate (TEPP)	EPA 8270C_3_1996	NPW	Good Standing
Tetraethyl pyrophosphate (TEPP)	EPA 8270C_3_1996	S	Good Standing
Thallium	EPA 200.7_5_1998	NPW	Good Standing
Thallium	EPA 6010B_2_1996	NPW	Good Standing
Thallium	EPA 6010B_2_1996	S	Good Standing
Thionazin (Zinophos)	EPA 8270C_3_1996	NPW	Good Standing
Thionazin (Zinophos)	EPA 8270C_3_1996	S	Good Standing
Thiophenol (Benzenethiol)	EPA 8270B_(9/94)	S	Good Standing
Thiophenol (Benzenethiol)	EPA 8270B_(9/94)	NPW	Good Standing
Thiophenol (Benzenethiol)	EPA 8270C_3_1996	S	Good Standing
Thiophenol (Benzenethiol)	EPA 8270C_3_1996	NPW	Good Standing
Tin	EPA 200.7_5_1998	NPW	Good Standing
Tin	EPA 6010B_2_1996	S	Good Standing
Tin	EPA 6010B_2_1996	NPW	Good Standing
Titanium	EPA 200.7_5_1998	NPW	Good Standing
Titanium	EPA 6010B_2_1996	S	Good Standing
Titanium	EPA 6010B_2_1996	NPW	Good Standing
Toluene	EPA 624	NPW	Good Standing
Toluene	EPA 8260B_2_1996	NPW	Good Standing
Toluene	EPA 8260B_2_1996	S	Good Standing
Toluene diisocyanate	EPA 8270B_(9/94)	S	Good Standing
Toluene diisocyanate	EPA 8270B_(9/94)	NPW	Good Standing
Toluene diisocyanate	EPA 8270C_3_1996	NPW	Good Standing
Toluene diisocyanate	EPA 8270C_3_1996	S	Good Standing
Total alpha radium	EPA 9315_(9/86)	S	Good Standing
Total alpha radium	EPA 9315_(9/86)	NPW	Good Standing
Total cyanide	EPA 9014_0_1996	NPW	Good Standing
Total cyanide	SM 4500-CN E 20th ED (1998)	NPW	Good Standing
Total organic carbon	EPA 9060A	NPW	Good Standing

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Total organic carbon	SM 5310 C 20th ED (1998)	NPW	Good Standing
Total organic halides (TOX)	EPA 9020A_(7/92)	S	Good Standing
Total organic halides (TOX)	EPA 9020A_(7/92)	NPW	Good Standing
Total phenolics	EPA 420.1_1978	NPW	Good Standing
Total phenolics	EPA 9065_0_1986	NPW	Good Standing
Total radium	EPA 903	NPW	Good Standing
Total radium	EPA 903	S	Good Standing
Total radium	EPA 9315_(9/86)	S	Good Standing
Total radium	EPA 9315_(9/86)	NPW	Good Standing
Toxaphene (Chlorinated camphene)	EPA 625	NPW	Good Standing
Toxaphene (Chlorinated camphene)	EPA 8081B_(11/00)	S	Good Standing
Toxaphene (Chlorinated camphene)	EPA 8081B_(11/00)	NPW	Good Standing
Toxaphene (Chlorinated camphene)	EPA 8270C_3_1996	NPW	Good Standing
Toxaphene (Chlorinated camphene)	EPA 8270C_3_1996	S	Good Standing
Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1311_0_1992	S	Good Standing
Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1311_0_1992	NPW	Good Standing
Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1312_0_1994	NPW	Good Standing
Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1312_0_1994	S	Good Standing
trans-1,2-Dicloroethylene	EPA 624	NPW	Good Standing
trans-1,2-Dicloroethylene	EPA 8260B_2_1996	NPW	Good Standing
trans-1,2-Dicloroethylene	EPA 8260B_2_1996	S	Good Standing
trans-1,3-Dichloropropylene	EPA 624	NPW	Good Standing
trans-1,3-Dichloropropylene	EPA 8260B_2_1996	S	Good Standing
trans-1,3-Dichloropropylene	EPA 8260B_2_1996	NPW	Good Standing
trans-1,4-Dichloro-2-butene	EPA 8260B_2_1996	S	Good Standing
trans-1,4-Dichloro-2-butene	EPA 8260B_2_1996	NPW	Good Standing
Trichloroethene (Trichloroethylene)	EPA 624	NPW	Good Standing
Trichloroethene (Trichloroethylene)	EPA 8260B_2_1996	S	Good Standing
Trichloroethene (Trichloroethylene)	EPA 8260B_2_1996	NPW	Good Standing
Trichlorofluoromethane	EPA 624	NPW	Good Standing
Trichlorofluoromethane	EPA 8260B_2_1996	NPW	Good Standing
Trichlorofluoromethane	EPA 8260B_2_1996	S	Good Standing
Trifluralin (Treflan)	EPA 8270C_3_1996	NPW	Good Standing
Trifluralin (Treflan)	EPA 8270C_3_1996	S	Good Standing
Trimethyl phosphate	EPA 8270C_3_1996	S	Good Standing
Trimethyl phosphate	EPA 8270C_3_1996	NPW	Good Standing
Tri-p-tolyl phosphate	EPA 8270C_3_1996	S	Good Standing
Tri-p-tolyl phosphate	EPA 8270C_3_1996	NPW	Good Standing
tris-(2,3-Dibromopropyl) phosphate (tris-BP)	EPA 8270C_3_1996	S	Good Standing
tris-(2,3-Dibromopropyl) phosphate (tris-BP)	EPA 8270C_3_1996	NPW	Good Standing
Tritium	EPA 906	NPW	Good Standing
Turbidity	EPA 180.1	NPW	Good Standing
Turbidity	SM 2130 B 20th ED (1998)	NPW	Good Standing
Uranium	ASTM D 5174-91	NPW	Good Standing
Uranium	ASTM D 5174-91	S	Good Standing

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Vanadium	EPA 200.7_5_1998	NPW	Good Standing
Vanadium	EPA 6010B_2_1996	S	Good Standing
Vanadium	EPA 6010B_2_1996	NPW	Good Standing
Vinyl acetate	EPA 8260B_2_1996	S	Good Standing
Vinyl acetate	EPA 8260B_2_1996	NPW	Good Standing
Vinyl chloride	EPA 624	NPW	Good Standing
Vinyl chloride	EPA 8260B_2_1996	S	Good Standing
Vinyl chloride	EPA 8260B_2_1996	NPW	Good Standing
Xenon-133	EPA 901.1	NPW	Good Standing
Xenon-133	EPA 901.1	S	Good Standing
Xylene (total)	EPA 8260B_2_1996	NPW	Good Standing
Xylene (total)	EPA 8260B_2_1996	S	Good Standing
Ytterbium-169	EPA 901.1	NPW	Good Standing
Ytterbium-169	EPA 901.1	S	Good Standing
Zinc	EPA 200.7_5_1998	NPW	Good Standing
Zinc	EPA 6010B_2_1996	NPW	Good Standing
Zinc	EPA 6010B_2_1996	S	Good Standing
Zinc 65	EPA 901	NPW	Good Standing
Zinc 65	EPA 901	S	Good Standing
Zinc 65	EPA 901.1	NPW	Good Standing
Zinc 65	EPA 901.1	S	Good Standing

DW = Drinking Water; NPW = Non-Potable Water; S = Solids

This analyte list supercedes all previously issued.

David Caldwell

Certification Officer

DISPLAY IN A PROMINENT POSITION

AFFIDAVIT OF JOHN H. ELLIS

I, John H. Ellis, being duly sworn according to law, depose and state as follows:

1. I am presently employed as the President for Sequoyah Fuels Corporation ("SFC") at the company's Gore, Oklahoma facility. In that capacity I am responsible for senior project management oversight for implementation and execution of reclamation activities at SFC's Gore facility, operation of facility equipment and systems, implementation and oversight of decommissioning activities, and related activities including waste management. My experience with SFC dates back to 1992 when I was first employed at the company's Gore, Oklahoma facility. I have personal knowledge of the raw materials used, the production processes employed, and the waste handling procedures followed at SFC's Gore facility.

2. SFC proposes to ship to Denison's White Mesa Mill in Blanding Utah, the following material: dewatered raffinate sludge, for processing as alternate feed materials. All of the proposed alternate feed materials are secondary products or waste streams produced in the conversion of uranium or the decommissioning of uranium conversion equipment at facilities owned and operated by SFC, and contains no materials or wastes from any other source.

3. The raffinate sludge consists of precipitated and settled soil, rock particles, metals, and radionuclides removed from the yellowcake feed (uranium) during the purification process at the SFC facility. No wastes from any other source are combined with the raffinate sludge. The raffinate sludge was passed through a filter press to remove water thus creating the dewatered raffinate sludge.

AFFIDAVIT OF JOHN H. ELLIS (continued)

4. I have reviewed and am familiar with the Utah Hazardous and Solid Waste Regulations R315-2-10 and R315-2-11 and the Code of Federal Regulations Title 40 Section 261.31 through 33 (the "Regulations") in the form attached hereto as Exhibit A. Based on the processing steps employed in SFC's uranium conversion facility, the proposed alternate feed materials do not contain any of the listed wastes enumerated in the Regulations.

5. Based on my knowledge of waste management at SFC's facilities, the proposed alternate feed materials have not been mixed with wastes from any other source, which may have been defined as or which may have contained listed wastes enumerated in the Regulations.

6. Specifically, the proposed alternate feed materials do not contain hazardous wastes from non-specific sources (Utah RCRA F type wastes) because (a) SFC does not operate any processes which produce the types of wastes listed in Section 261.31 of Title 40 of the Regulations, and (b) SFC has never accepted, nor have the proposed alternate feed materials ever been combined with, wastes from any other source which contain Utah RCRA F type wastes as defined therein.

7. Specifically, the proposed alternate feed materials do not contain hazardous wastes from specific sources (Utah. RCRA K type wastes) because SFC does not operate any of the processes which produce the types of wastes listed in Section 261.32 of Title 40 of the Regulations, and (b) SFC has never accepted, nor have the proposed alternate feed materials ever been combined with, wastes from any other source which contain Utah RCRA K type wastes as defined therein.

AFFIDAVIT OF JOHN H. ELLIS (continued)

8. Specifically, the proposed alternate feed materials are not Utah RCRA P or U type wastes as defined in Section 261.33 of Title 40 of the Regulations because they (a) are not manufactured or formulated commercially pure grade chemicals, off spec commercial chemical products or manufacturing chemical intermediates, residues from containers that held commercial chemical products or manufacturing chemical intermediates, or any residue or contaminated soil, water or other debris resulting from a spill cleanup, and (b) SFC has never accepted, nor have the proposed alternate feed materials ever been combined with, wastes from any other source which contain Utah RCRA P or U type wastes as defined therein.

Dated the 22nd day of FEBRUARY, 2009 John H. Ellis

John H. Ellis

Sworn to and subscribed before me

this 22nd day of Feb, 2009

Brenda Tillman

Notary Public

BRENDA TILLMAN NOTARY # 03009425 EXP. 06/30/11 PUBLIC STATE OF OKLAHOMA

My Commission Expires: 06/30/2011

ATTACHMENT 3
Denison/UDEQ Protocol for Determining Whether Alternate Feed Materials Are RCRA Listed hazardous Waste

State of Utah

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF SOLID AND HAZARDOUS WASTE

Michael O. Leavitt
Governor

Dianne R. Nielson, Ph.D.
Executive Director

Dennis R. Downs
Director

288 North 1460 West
P.O. Box 144880
Salt Lake City, Utah 84114-4880
(801) 538-6170
(801) 538-6715 Fax
(801) 536-4414 T.D.D.
www.deq.state.ut.us Web

December 7, 1999

M. Lindsay Ford
Parsons, Behle and Latimer
One Utah Center
201 South Main Street
Suite 1800
Post Office Box 45898
Salt Lake City, Utah 84145-0898

RE: Protocol for Determining Whether Alternate Feed Materials are Listed Hazardous Wastes

Dear Mr. Ford:

On November 22, 1999, we received the final protocol to be used by International Uranium Corporation (IUSA) in determining whether alternate feed materials proposed for processing at the White Mesa Mill are listed hazardous wastes. We appreciate the effort that went into preparing this procedure and feel that it will be a useful guide for IUSA in its alternate feed determinations.

As was discussed, please be advised that it is IUSA's responsibility to ensure that the alternate feed materials used are not listed hazardous wastes and that the use of this protocol cannot be used as a defense if listed hazardous waste is somehow processed at the White Mesa Mill.

Thank you again for your corporation. If you have any questions, please contact Don Verbica at 538-6170.

Sincerely,

Dennis R. Downs, Executive Secretary
Utah Solid and Hazardous Waste Control Board

c: Bill Sinclair, Utah Division of Radiation Control

F:\SHW\HWB\DVERBICA\WP\whitemesa.wpd

PROTOCOL FOR DETERMINING WHETHER ALTERNATE FEED MATERIALS ARE LISTED HAZARDOUS WASTES[1]

NOVEMBER 16, 1999

1. SOURCE INVESTIGATION.

Perform a good faith investigation (a "Source Investigation" or "SI")[2] regarding whether any listed hazardous wastes[3] are located at the site from which alternate feed material[4] ("Material") originates (the "Site"). This investigation will be conducted in conformance with EPA guidance[5] and the extent of information required will vary with the circumstances of each case. Following are examples of investigations that would be considered satisfactory under EPA guidance and this Protocol for some selected situations:

- Where the Material is or has been generated from a known process under the control of the generator: (a) an affidavit, certificate, profile record or similar document from the Generator or Site Manager, to that effect, together with (b) a Material Safety Data Sheet ("MSDS") for the Material, limited profile

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1 This Protocol reflects the procedures that will be followed by ~~an understanding between the Utah Division of Solid and Hazardous Waste, Department of Environmental Quality ("DEQ" or the "State") and~~ International Uranium (USA) Corporation ("IUSA") for determining whether alternate feed materials proposed for processing at the White Mesa Mill are (or contain) listed hazardous wastes. It is based on current Utah and EPA rules and EPA guidance under the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. §§ 6901 et seq. This Protocol will be changed as necessary to reflect any pertinent changes to RCRA rules or EPA guidance.

2 This investigation will be performed by IUSA, by the entity responsible for the site from which the Material originates (the "Generator"), or by a combination of the two.

3 Attachment 1 to this Protocol provides a summary of the different classifications of RCRA listed hazardous wastes.

4 Alternate feed materials that are primary or intermediate products of the generator of the material (*e.g.*, "green" or "black" salts) are not RCRA "secondary materials" or "solid wastes," as defined in 40 CFR 261, and are not covered by this Protocol.

5 EPA guidance identifies the following sources of site- and waste-specific information that may, depending on the circumstances, be considered in such an investigation: hazardous waste manifests, vouchers, bills of lading, sales and inventory records, material safety data sheets, storage records, sampling and analysis reports, accident reports, site investigation reports, interviews with employees/former employees and former owners/operators, spill reports, inspection reports and logs, permits, and enforcement orders. *See e.g.*, 61 Fed. Reg. 18805 (April 29, 1996).

sampling, or a material composition determined by the generator/operator based on a process material balance.

- Where specific information exists about the generation process and management of the Material: (a) an affidavit, certificate, profile record or similar document from the Generator or Site Manager, to that effect, together with (b) an MSDS for the Material, limited profile sampling data or a preexisting investigation performed at the Site pursuant to CERCLA, RCRA or other state or federal environmental laws or programs.
- Where potentially listed processes are known to have been conducted at a Site, an investigation considering the following sources of information: site investigation reports prepared under CERCLA, RCRA or other state or federal environmental laws or programs (*e.g.*, an RI/FS, ROD, RFI/CMS, hazardous waste inspection report); interviews with persons possessing knowledge about the Material and/or Site; and review of publicly available documents concerning process activities or the history of waste generation and management at the Site.
- If material from the same source is being or has been accepted for direct disposal as 11e.(2) byproduct material in an NRC-regulated facility in the State of Utah with the consent or acquiescence of the State of Utah, the Source Investigation performed by such facility.

Proceed to Step 2.

2. SPECIFIC INFORMATION OR AGREEMENT/DETERMINATION BY RCRA REGULATORY AUTHORITY THAT MATERIAL IS NOT A LISTED HAZARDOUS WASTE?

a. Determine whether specific information from the Source Investigation exists about the generation and management of the Material to support a conclusion that the Material is not (and does not contain) any listed hazardous waste. For example, if specific information exists that the Material was not generated by a listed waste source and that the Material has not been mixed with any listed wastes, the Material would not be a listed hazardous waste.

b. Alternatively, determine whether the appropriate state or federal authority with RCRA jurisdiction over the Site agrees in writing with the generator's determination that the

Material is not a listed hazardous waste, has made a "contained-out" determination[6] with respect to the Material or has concluded the Material or Site is not subject to RCRA.

If yes to either question, proceed to Step 3.

If no to both questions, proceed to Step 6.

3. PROVIDE INFORMATION TO NRC AND UTAH.

a. If specific information exists to support a conclusion that the Material is not, and does not contain, any listed hazardous waste, ~~International Uranium (USA) Corporation ("IUSA")~~ will provide a description of the Source Investigation to NRC and/or the State of Utah Department of Environmental Quality, Division of Solid and Hazardous Waste (the "State"), together with an affidavit explaining why the Material is not a listed hazardous waste.

b. Alternatively, if the appropriate regulatory authority with RCRA jurisdiction over the Site agrees in writing with the generator's determination that the Material is not a listed hazardous waste, makes a contained-out determination or determines the Material or Site is not subject to RCRA, IUSA will provide documentation of the regulatory authority's determination to NRC and the State. IUSA may rely on such determination provided that the State agrees the conclusions of the regulatory authority were reasonable and made in good faith.

Proceed to Step 4.

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6 EPA explains the "contained-out" (also referred to as "contained-in") principle as follows:

> In practice, EPA has applied the contained-in principle to refer to a process where a site-specific determination is made that concentrations of hazardous constituents in any given volume of environmental media are low enough to determine that the media does not "contain" hazardous waste. Typically, these so-called "contained-in" [or "contained-out"] determinations do not mean that no hazardous constituents are present in environmental media but simply that the concentrations of hazardous constituents present do not warrant management of the media as hazardous waste. ...
>
> EPA has not, to date, issued definitive guidance to establish the concentrations at which contained-in determinations may be made. As noted above, decisions that media do not or no longer contain hazardous waste are typically made on a case-by-case basis considering the risks posed by the contaminated media.

63 Fed. Reg. 28619, 28621-22 (May 26, 1998) (Phase IV LDR preamble).

4. DOES STATE OF UTAH AGREE THAT ALL PREVIOUS STEPS HAVE BEEN PERFORMED IN ACCORDANCE WITH THIS PROTOCOL?

Determine whether the State agrees that this Protocol has been properly followed (including that proper decisions were made at each decision point). The State shall review the information provided by IUSA in Step 3 or 16 ~~promptly~~ with reasonable speed and advise IUSA if it believes IUSA has not properly followed this Protocol in determining that the Material is not listed hazardous waste, specifying the particular areas of deficiency.

If this Protocol has not been properly followed by IUSA in making its determination that the Material is not a listed hazardous waste, then IUSA shall redo its analysis in accordance with this Protocol and, if justified, resubmit the information described in Step 3 or 16 explaining why the Material is not a listed hazardous waste. The State shall notify IUSA ~~promptly~~ with reasonable speed if the State still believes this Protocol has not been followed.

If yes, proceed to Step 5.

If no, proceed to Step 1.

5. MATERIAL IS NOT A LISTED HAZARDOUS WASTE.

The Material is not a listed hazardous waste and no further sampling or evaluation is necessary in the following circumstances:

- Where the Material is determined not to be a listed hazardous waste based on specific information about the generation/management of the Material OR the appropriate RCRA regulatory authority with jurisdiction over the Site agrees with the generator's determination that the Material is not a listed HW, makes a contained-out determination, or concludes the Material or Site is not subject to RCRA (and the State agrees the conclusions of the regulatory authority were reasonable and made in good faith) (Step 2); or
- Where the Material is determined not to be a listed hazardous waste (in Steps 6 through 11, 13 or 15) and Confirmation/Acceptance Sampling are determined not to be necessary (under Step 17).

6. IS MATERIAL A PROCESS WASTE KNOWN TO BE A LISTED HAZARDOUS WASTE OR TO BE MIXED WITH A LISTED HAZARDOUS WASTE?

Based on the Source Investigation, determine whether the Material is a process waste known to be a listed hazardous waste or to be mixed with a listed hazardous waste. If the Material is a process waste and is from a listed hazardous waste source, it is a listed hazardous waste. Similarly, if the Material is a process waste and has been mixed with a listed hazardous waste, it is a listed hazardous waste under the RCRA "mixture rule." If the Material is an Environmental Medium,[7] it cannot be a listed hazardous waste by direct listing or under the RCRA "mixture rule."[8] If the Material is a process waste but is not known to be from a listed source or to be mixed with a listed waste, or if the Material is an Environmental Medium, proceed to Steps 7 through 11 to determine whether it is a listed hazardous waste.

If yes, proceed to Step 12.

If no, proceed to Step 7.

7. DOES MATERIAL CONTAIN ANY POTENTIALLY LISTED HAZARDOUS CONSTITUENTS?

Based on the Source Investigation (and, if applicable, Confirmation and Acceptance Sampling), determine whether the Material contains any hazardous constituents listed in the then most recent version of 40 CFR 261, Appendix VII (which identifies hazardous constituents for which F- and K-listed wastes were listed) or 40 CFR 261.33(e) or (f) (the P and U listed wastes) (collectively "Potentially Listed Hazardous Constituents"). If the Material contains such constituents, a source evaluation is necessary (pursuant to Steps 8 through 11). If the Material does not contain any Potentially Listed Hazardous Constituents, it is not a listed hazardous waste. The Material also is not a listed hazardous waste if, where applicable, Confirmation and Acceptance Sampling results do not reveal the presence of any "new" Potentially Listed Hazardous Constituents (*i.e.*, constituents other than those that have ~~not~~ already been identified by the Source Investigation (or previous Confirmation/Acceptance Sampling) and determined not to originate from a listed source).

If yes, proceed to Step 8.

If no, proceed to Step 16.

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7 The term "Environmental Media" means soils, ground or surface water and sediments.

8 The "mixture rule" applies only to mixtures of listed hazardous wastes and other "solid wastes." *See* 40 CFR § 261.3(a)(2)(iv). The mixture rule does not apply to mixtures of listed wastes and Environmental Media, because Environmental Media are not "solid wastes" under RCRA. *See* 63 Fed. Reg. 28556, 28621 (May 26, 1998).

8. IDENTIFY POTENTIALLY LISTED WASTES.

Identify potentially listed hazardous wastes ("Potentially Listed Wastes") based on Potentially Listed Hazardous Constituents detected in the Material, *i.e.*, wastes which are listed for any of the Potentially Listed Hazardous Constituents detected in the Material, as identified in the then most current version of 40 CFR 261 Appendix VII or 40 CFR 261.33(e) or (f).[9] With respect to Potentially Listed Hazardous Constituents identified through Confirmation and/or Acceptance Sampling, a source evaluation (pursuant to Steps 8 through 11) is necessary only for "new" Potentially Listed Hazardous Constituents (*i.e.*, constituents other than those that have ~~not~~ already been identified by the Source Investigation (or previous Confirmation/Acceptance Sampling) and determined not to originate from a listed source).

Proceed to Step 9.

9. WERE ANY OF THE POTENTIALLY LISTED WASTES KNOWN TO BE GENERATED OR MANAGED AT SITE?

Based on information from the Source Investigation, determine whether any of the Potentially Listed Wastes identified in Step 8 are known to have been generated or managed at the Site. This determination involves identifying whether any of the specific or non-specific sources identified in the K- or F-lists has ever been conducted or located at the Site, whether any waste from such processes has been managed at the Site, and whether any of the P- or U-listed commercial chemical products has ever been used, spilled or managed there. In particular, this determination should be based on the following EPA criteria:

Solvent Listings (F001-F005)

Under EPA guidance, "to determine if solvent constituents contaminating a waste are RCRA spent solvent F001-F005 wastes, the [site manager] must know if:

- The solvents are *spent* and *cannot be reused without reclamation* or cleaning.
- The solvents were *used exclusively for their solvent properties.*
- The solvents are spent *mixtures and blends that contained, before use, a total of 10 percent or more (by volume) of the solvents* listed in F001, F002, F004, and F005.

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[9] For example, if the Material contains tetrachloroethylene, the following would be Potentially Listed Wastes: F001, F002, F024, K019, K020, K150, K151 or U210. *See* 40 CFR 261 App. VII.

If the solvents contained in the [wastes] are RCRA listed wastes, the [wastes] are RCRA hazardous waste. When the [site manager] does not have guidance information on the use of the solvents and their characteristics before use, the [wastes] cannot be classified as containing a listed spent solvent."[10] The person performing the Source Investigation will make a good faith effort to obtain information on any solvent use at the Site. <u>If solvents were used at the Site, general industry standards for solvent use in effect at the time of use will be considered in determining whether those solvents contained 10 percent or more of the solvents listed in F001, F002, F004 or F005.</u>

<u>K-Listed Wastes and F-Listed Wastes Other Than F001-F005</u>

Under EPA guidance, to determine whether K wastes and F wastes other than F001-F005 are RCRA listed wastes, the generator "must know the ***generation process information*** (about each waste contained in the RCRA waste) described in the listing. For example, for [wastes] to be identified as containing K001 wastes that are described as 'bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol,' the [site manager] must know the manufacturing process that generated the wastes (treatment of wastewaters from wood preserving process), feedstocks used in the process (creosote and pentachlorophenol), and the process identification of the wastes (bottom sediment sludge)."[11]

<u>P- and U-Listed Wastes</u>

EPA guidance provides that "P and U wastes cover only unused and unmixed commercial chemical products, particularly spilled or off-spec products. Not every waste containing a P or U chemical is a hazardous waste. To determine whether a [waste] contains a P or U waste, the [site manager] must have direct evidence of product use. In particular, the [site manager] should ascertain, if possible, whether the chemicals are:

- Discarded (as described in 40 CFR 261.2(a)(2)).
- Either off-spec commercial products or a commercially sold grade.

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10 Management of Investigation-Derived Wastes During Site Inspections, EPA/540/G-91/009, May 1991 (emphasis added).

11 Management of Investigation-Derived Wastes During Site Inspections, EPA/540/G-91/009, May 1991 (emphasis added).

- Not used (soil contaminated with spilled unused wastes is a P or U waste).
- The sole active ingredient in a formulation."[12]

~~If the answer to the question in this step is yes,~~ If Potentially Listed Wastes were known to be generated or managed at the Site, further evaluation is necessary to determine whether these wastes were disposed of or commingled with the Material (Steps 10 and possibly 11). ~~If the answer is no,~~ If Potentially Listed Wastes were not known to be generated or managed at the Site, then information concerning the source of Potentially Listed Hazardous Constituents in the Material will be considered "unavailable or inconclusive" and, under EPA guidance,[13] the Material will be assumed not to be a listed hazardous waste.

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12 Management of Investigation-Derived Wastes During Site Inspections, EPA/540/G-91/009, May 1991.

13 EPA guidance consistently provides that, where information concerning the origin of a waste is ~~not~~ unavailable or inconclusive, the waste may be assumed not to be a listed hazardous waste. *See e.g.*, Memorandum from Timothy Fields (Acting Assistant Administrator for Solid Waste & Emergency Response) to RCRA/CERCLA Senior Policy Managers regarding "Management of Remediation Waste Under RCRA," dated October 14, 1998 ("Where a facility owner/operator makes a good faith effort to determine if a material is a listed hazardous waste but cannot make such a determination because documentation regarding a source of contamination, contaminant, or waste is *unavailable or inconclusive*, EPA has stated that one may assume the source, contaminant, or waste is not listed hazardous waste"); NCP Preamble, 55 Fed. Reg. 8758 (March 8, 1990) (Noting that "it is often necessary to know the origin of the waste to determine whether it is a listed waste and that, *if such documentation is lacking, the lead agency may assume it is not a listed waste*); Preamble to proposed Hazardous Waste Identification Rule, 61 Fed. Reg. 18805 (April 29, 1996) ("Facility owner/operators should make a good faith effort to determine whether media were contaminated by hazardous wastes and ascertain the dates of placement. The Agency believes that by using available site- and waste-specific information ... facility owner/operators would typically be able to make these determinations. However, as discussed earlier in the preamble of today's proposal, *if information is not available or inconclusive, facility owner/operators may generally assume that the material contaminating the media were not hazardous wastes*."); Preamble to LDR Phase IV Rule, 63 Fed. Reg. 28619 (May 26, 1998) ("As discussed in the April 29, 1996 proposal, the Agency continues to believe that, *if information is not available or inconclusive, it is generally reasonable to assume that contaminated soils do not contain untreated hazardous wastes* ..."); and Memorandum from John H. Skinner (Director, EPA Office of Solid Waste) to David Wagoner (Director, EPA Air and Waste Management Division, Region VII) regarding "Soils from Missouri Dioxin Sites," dated January 6, 1984 ("The analyses indicate the presence of a number of toxic compounds in many of the soil samples taken from various sites. However, the presence of these toxicants in the soil does not automatically make the soil a RCRA
(footnote continued on next page)

If yes, proceed to Step 10.

If no, proceed to Step 16.

10. WERE LISTED WASTES KNOWN TO BE DISPOSED OF OR COMMINGLED WITH MATERIAL?

If listed wastes identified in Step 9 were known to be generated at the Site, determine whether they were known to be disposed of or commingled with the Material?

If yes, proceed to Step 12.

If no, proceed to Step 11.

11. ARE THERE ONE OR MORE POTENTIAL NON-LISTED SOURCES OF LISTED HAZARDOUS WASTE CONSTITUENTS?

In a situation where Potentially Listed Wastes were known to have been generated/managed at the Site, but the wastes were not known to have been disposed of or commingled with the Material, determine whether there are potential non-listed sources of Potentially Listed Hazardous Constituents in the Material. If not, unless the State agrees otherwise, the constituents will be assumed to be from listed sources (proceed to Step 12). If so, the Material will be assumed not to be a listed hazardous waste (proceed to Step 16). Notwithstanding the existence of potential non-listed sources at a Site, the Potentially Listed Hazardous Constituents in the Material will be considered to be from the listed source(s) if, based on the relative proximity of the Material to the listed and non-listed source(s) and/or information concerning waste management at the Site, the evidence is compelling that the listed source(s) is the source of Potentially Listed Hazardous Constituents in the Material.

If yes, proceed to Step 16.

If no, proceed to Step 12.

12. MATERIAL IS A LISTED HAZARDOUS WASTE.

The Material is a listed hazardous waste under the following circumstances:

(footnote continued from previous page)

hazardous waste. The origin of the toxicants must be known in order to determine that they are derived from a listed hazardous waste(s). *If the exact origin of the toxicants is not known, the soils cannot be considered RCRA hazardous wastes* unless they exhibit one or more of the characteristics of hazardous waste ...").

- If the Material is a process waste and is known to be a listed hazardous waste or to be mixed with a listed hazardous waste (Step 6),
- If Potentially Listed Wastes were known to be ~~actually~~ generated/managed at the Site and to be disposed of/commingled with the Material (Step 10) (subject to a "contained-out" determination in Step 13), or
- If Potentially Listed Wastes were known to be ~~actually~~ generated/managed at the Site, were not known to be disposed of/commingled with the Material but there are not any potential non-listed sources of the Potentially Listed Hazardous Constituents detected in the Material (Step 11) (subject to a "contained-out" determination in Step 13).

Proceed to Step 13.

13. HAS STATE OF UTAH MADE A CONTAINED-OUT DETERMINATION.

If the Material is an Environmental Medium, and:

- the level of any listed waste constituents in the Material is "de minimis" ; or
- all of the listed waste constituents or classes thereof are already present in the White Mesa Mill's tailings ponds as a result of processing conventional ores or other alternate feed materials in concentrations at least as high as found in the Materials

the State of Utah will consider whether it is appropriate to make a contained-out determination with respect to the Material.

If the State makes a contained-out determination, proceed to Step 16.

If the State does not make a contained-out determination, proceed to Step 14.

14. IS IT POSSIBLE TO SEGREGATE LISTED HAZARDOUS WASTES FROM OTHER MATERIALS?

Determine whether there is a reasonable way to segregate material that is a listed hazardous waste from alternate feed materials that are not listed hazardous wastes that will be sent to IUSA's White Mesa Mill. For example, it may be possible to isolate material from a certain area of a remediation site and exclude that material from Materials that will be sent to the White Mesa Mill. Alternatively, it may be possible to increase sampling frequency and exclude materials with respect to which the increased sampling identifies constituents which have been attributed to listed hazardous waste.

If yes, proceed to Step 15.

If no, proceed to Step 12.

15. SEPARATE LISTED HAZARDOUS WASTES FROM MATERIALS.

Based on the method of segregation determined under Step 14, materials that are listed hazardous wastes are separated from Materials that will be sent to the White Mesa Mill.

For materials that are listed hazardous wastes, proceed to Step 12.

For Materials to be sent to the White Mesa Mill, proceed to Step 16.

16. PROVIDE INFORMATION TO NRC AND UTAH.

If the Material does not contain any Potentially Listed Hazardous Constituents (as determined in Step 7), where information concerning the source of Potentially Listed Hazardous Constituents in the Material is "unavailable or inconclusive" (as determined in Steps 8 through 11), or where the State of Utah has made a contained-out determination with respect to the Material (Step 13), the Material will be assumed not to be (or contain) a listed hazardous waste. In such circumstances, IUSA will submit the following documentation to NRC and the State:

- A description of the Source Investigation;
- An explanation of why the Material is not a listed hazardous waste.
- Where applicable, an explanation of why Confirmation/Acceptance Sampling has been determined not to be necessary in Step 17.
- If Confirmation/Acceptance Sampling has been determined necessary in Step 17 , a copy of IUSA's and the Generator's Sampling and Analysis Plans.
- A copy of Confirmation and Acceptance Sampling results, if applicable. IUSA will submit these results only if they identify the presence of "new" Potentially Listed Hazardous Constituents (as defined in Steps 7 and 8).

Proceed to Step 17.

17. ARE SAMPLING RESULTS OR DATA REPRESENTATIVE?

Determine whether the sampling results or data from the Source Investigation (or, where applicable, Confirmation/Acceptance Sampling results) are representative. The purpose of this step) is to determine whether Confirmation and Acceptance Sampling (or continued Confirmation and Acceptance Sampling) are necessary. If the sampling results or data are representative of all Material destined for the White Mesa Mill, based on the extent of sampling conducted, the nature of the Material and/or the nature of the Site (*e.g.*, whether chemical operations or waste disposal were known to be conducted at the Site), future Confirmation/Acceptance Sampling will not be necessary. If the sampling results are not representative of all Material destined for the White Mesa Mill, then additional Confirmation/Acceptance sampling may be appropriate. Confirmation and Acceptance Sampling will be required only where it is reasonable to expect that additional sampling will detect additional contaminants not already detected. For example:

- Where the Material is segregated from Environmental Media, *e.g.*, the Material is containerized, there is a high probability the sampling results or data from the Source Investigation are representative of the Material and Confirmation/Acceptance Sampling would not be required.
- Where IUSA will be accepting Material from a discrete portion of a Site, *e.g.*, a storage pile or other defined area, and adequate sampling characterized the area of concern for radioactive and chemical contaminants, the sampling for that area would be considered representative and Confirmation/Acceptance sampling would not be required.
- Where Material will be received from a wide area of a Site and the Site has been carefully characterized for radioactive contaminants, but not chemical contaminants, Confirmation/Acceptance sampling would be required.
- Where the Site was not used for industrial activity or disposal before or after uranium material disposal, and the Site has been adequately characterized for radioactive and chemical contaminants, the existing sampling would be considered sufficient and Confirmation/Acceptance sampling would not be required.
- Where listed wastes were known to be disposed of on the Site and the limits of the area where listed wastes were managed is not known, Confirmation/Acceptance sampling would be required to ensure that listed wastes are not shipped to IUSA (see Step 14).

If yes, proceed to Step 4.

If no, proceed to Step 18.

18. DOES STATE OF UTAH AGREE THAT ALL PREVIOUS STEPS HAVE BEEN PERFORMED IN ACCORDANCE WITH THIS PROTOCOL?

Determine whether the State agrees that this Protocol has been properly followed (including that proper decisions were made at each decision point). The State shall review the information provided by IUSA in Step 16 ~~promptly~~ with reasonable speed and advise IUSA if it believes IUSA has not properly followed this Protocol in determining that the Material is not listed hazardous waste, specifying the particular areas of deficiency.

If this Protocol has not been properly followed by IUSA in making its determination that the Material is not a listed hazardous waste, then IUSA shall redo its analysis in accordance with this Protocol and, if justified, resubmit the information described in Step 16 explaining why the Material is not a listed hazardous waste. The State shall notify IUSA ~~promptly~~ with reasonable speed if the State still believes this Protocol has not been followed.

If yes, proceed to Step 19.

If no, proceed to Step 1.

19. MATERIAL IS NOT A LISTED HAZARDOUS WASTE, BUT CONFIRMATION AND ACCEPTANCE SAMPLING ARE REQUIRED.

The Material is not a listed hazardous waste, but Confirmation and Acceptance Sampling are required, as determined necessary under Step 17.

Proceed to Step 20.

20. CONDUCT ONGOING CONFIRMATION AND ACCEPTANCE SAMPLING.

Confirmation and Acceptance Sampling will continue until determined no longer necessary under Step 17. Such sampling will be conducted pursuant to a Sampling and Analysis Plan ("SAP") that specifies the frequency and type of sampling required. If such sampling does not reveal any "new" Potentially Listed Hazardous Constituents (as defined in Steps 7 and 8), further evaluation is not necessary (as indicated in Step 7). If such sampling reveals the presence of "new" constituents, Potentially Listed Wastes must be identified (Step 8) and evaluated (Steps 9 through 11) to determine whether the new constituent is from a listed hazardous waste source. Generally, in each case, the SAP will specify sampling comparable to the level and frequency of sampling performed by other facilities in the State of Utah that dispose of 11e.(2) byproduct material, either directly or that results from processing alternate feed materials.

Proceed to Step 7.

Attachment 1

Summary of RCRA Listed Hazardous Wastes

There are three different categories of listed hazardous waste under RCRA:

- *F-listed wastes from non-specific sources (40 CFR § 261.31(a))*: These wastes include spent solvents (F001-F005), specified wastes from electroplating operations (F006-F009), specified wastes from metal heat treating operations (F010-F012), specified wastes from chemical conversion coating of aluminum (F019), wastes from the production/manufacturing of specified chlorophenols, chlorobenzenes, and chlorinated aliphatic hydrocarbons (F019-F028), specified wastes from wood preserving processes (F032-F035), specified wastes from petroleum refinery primary and secondary oil/water/solids separation sludge (F037-F038), and leachate resulting from the disposal of more than one listed hazardous waste (F039).
- *K-listed wastes from specific sources (40 CFR § 261.32)*: These include specified wastes from wood preservation, inorganic pigment production, organic chemical production, chlorine production, pesticide production, petroleum refining, iron and steel production, copper production, primary and secondary lead smelting, primary zinc production, primary aluminum reduction, ferroalloy production, veterinary pharmaceutical production, ink formulation and coking.
- *P- and U-listed commercial chemical products (40 CFR § 261.33)*: These include commercial chemical products, or manufacturing chemical intermediates having the generic name listed in the "P" or "U" list of wastes, container residues, and residues in soil or debris resulting from a spill of these materials.[1] "The phrase 'commercial chemical product or manufacturing chemical intermediate ...' refers to a chemical substance which is manufactured or formulated for commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient. It does not refer to a material, such as a manufacturing process waste, that contains any of the [P- or U-listed substances]."[2]

Appendix VII to 40 CFR part 261 identifies the hazardous constituents for which the F- and K-listed wastes were listed.

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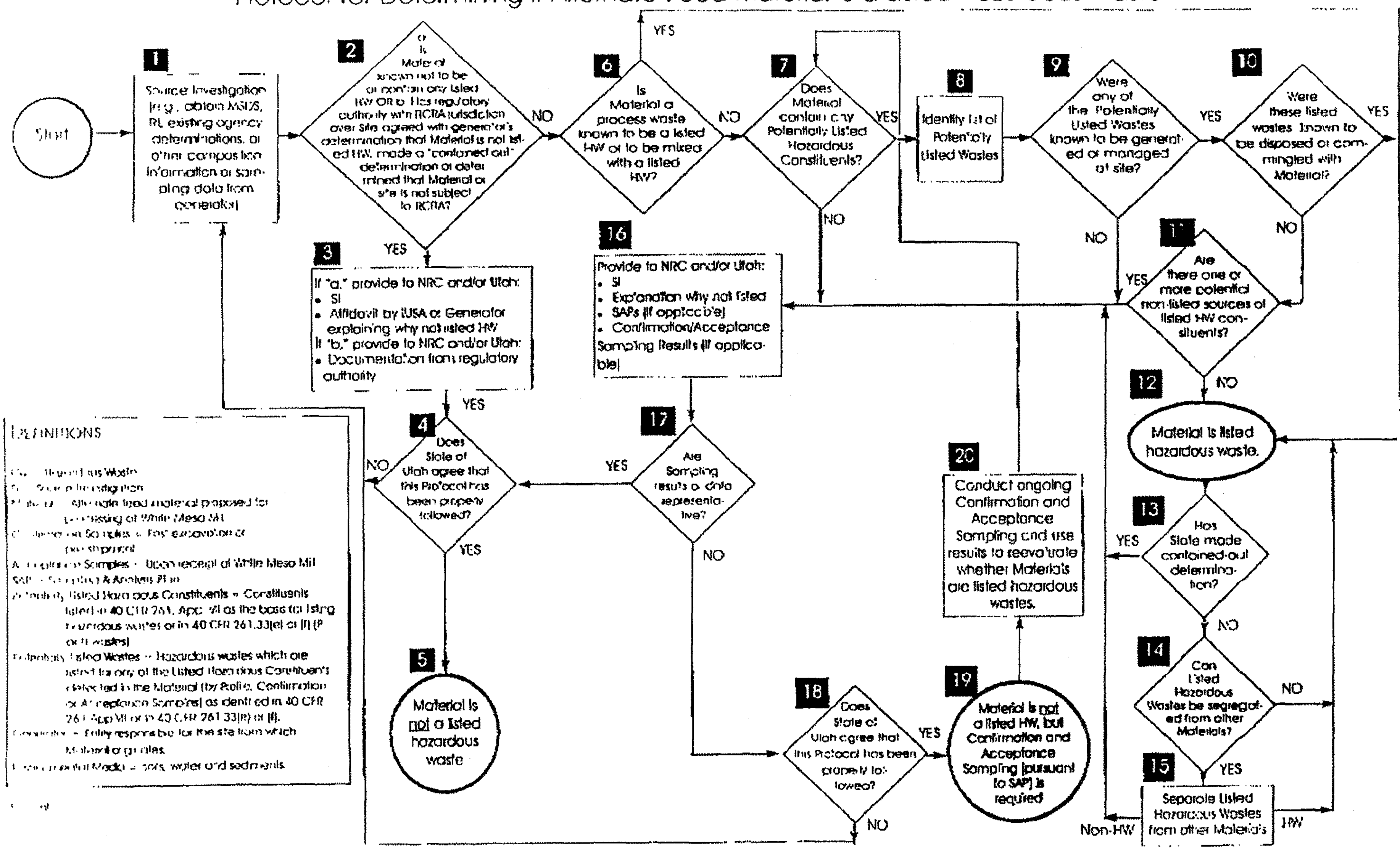
1 P-listed wastes are identified as "acutely hazardous wastes" and are subject to additional management controls under RCRA. 40 CFR § 261.33(e) (1997). U-listed wastes are identified as "toxic wastes." Id. § 261.33(f).

2 40 CFR § 261.33(d) note (1997).

Protocol for Determining if Alternate Feed Material is a Listed Hazardous Waste



ATTACHMENT 4

Review of Chemical Contaminant in SFC Uranium Material to Determine the Potential Presence of RCRA Characteristic or RCRA Listed Hazardous Waste

Technical Memorandum

To:	David C. Frydenlund	**From:**	Jo Ann Tischler
Company:	Denison Mines (USA) Corp.	**Date:**	December 15, 2011
Re:	Review of Chemical Contaminants in Sequoyah Fuels Uranium Material to Determine the Potential Presence of RCRA Characteristic or RCRA Listed Hazardous Waste	**Project #:**	
CC:			

1.0 Introduction

This report summarizes the characterization of the Sequoyah Fuels Corporation ("SFC") Uranium Material (the "Uranium Material"), also referred to as the dewatered raffinate sludge to be transported from the SFC Gore, Oklahoma facility, to determine whether or not the Uranium Material is or contains any listed or characteristic hazardous waste as defined by the Resource Conservation and Recovery Act ("RCRA"). The results of this characterization will provide information for Denison Mines (USA) Corp. ("Denison") to determine the requirements necessary for an amendment to its White Mesa Uranium Mill ("Mill") State of Utah Radioactive Materials License No. UT1900479 (the "License") to permit the processing of the Uranium Material as an alternate feed material at the Mill.

In accordance with the definitions in the Atomic Energy Act, as amended, and 10 Code of Federal Regulations ("CFR") 40.4, ores with natural uranium content of 0.05 weight percent or higher are classified as source material and, as per 40 CFR Part 261.4, are exempt from regulation under RCRA. As summarized in the Radioactive Material Profile Record, the Uranium Material has a uranium content of approximately 0.7 to 1.0 dry weight percent natural uranium (0.8 to 1.2 weight percent U_3O_8). This Uranium Material is therefore source material, and is categorically exempt from RCRA.

Further, the Uranium Material has also been classified as 11e.(2) byproduct material by the U.S. Nuclear Regulatory Commission ("NRC") under SFC's License Amendment 29, dated December 11, 2002, and for this reason also is categorically exempt from RCRA under 40 CFR 261.4. Although the Uranium Material is exempt from regulation under RCRA, Denison nonetheless requires a due diligence evaluation of potential materials to be processed, to assess:

1. Whether the material is, or contains, any hazardous constituents that would be regulated as RCRA listed hazardous waste, if the Uranium Material were not categorically exempt from RCRA as a uranium ore or 11e.(2) byproduct material or a categorically exempt solid waste.

2. Whether the material contains any constituents that could generate a worker safety or environmental hazard under the conditions under which it will be processed at the Mill.

3. Whether the material contains any constituents that would be incompatible with the Mill's tailings system.

This memorandum provides the evaluation of the regulatory status of the Uranium Material relative to RCRA. Evaluation of potential safety and environmental hazards, and compatibility with the Mill's tailings system are provided in a separate memorandum.

2.0 Site History and Background

The SFC Gore, Oklahoma facility (the "Facility" or the "Site") is a former uranium conversion facility that operated from 1970 to 1993. The facility was constructed and operated by SFC, as a subsidiary of Kerr-McGee Nuclear Corporation. In 1983 Kerr-McGee Nuclear Corporation split into Quivira Mining Corporation and SFC, which maintained control of the Gore Facility. SFC was sold to General Atomics Corporation in 1988 and continued to operate the facility until 1993.

From 1970 to 1993, the facility chemically converted uranium ore concentrates (yellowcake) to uranium hexafluoride under U.S. Nuclear Regulatory Commission ("NRC") Source Materials License Number SUB-1010. From 1987 to 1993, the facility also converted depleted uranium hexafluoride into depleted uranium tetrafluoride in a different circuit. The Uranium Material consists only of residuals from the conversion of natural uranium yellowcake to uranium hexafluoride.

NRC's Alternate Feed Guidance currently provides that if a proposed feed material contains hazardous waste, listed under Section 261.30-33, Subpart D, of 40 CFR (or comparable RCRA authorized State regulations), it would be subject to EPA (or State) regulation under RCRA. However, the Guidance provides that if the licensee can show that the proposed feed material does not consist of a listed hazardous waste, this issue is resolved. NRC guidance further states that feed material exhibiting only a characteristic of hazardous waste (ignitability, corrosivity, reactivity, toxicity) that is being recycled, would not be regulated as hazardous waste and could therefore be approved for extraction of source material. The Alternate Feed Guidance concludes that if the feed material contains a listed hazardous waste, the licensee can process it only if it obtains EPA (or State) approval and provides the necessary documentation to that effect. The Alternate Feed Guidance also states that NRC staff may consult with EPA (or the State) before making a determination on whether the feed material contains listed hazardous waste.

Subsequent to the date of publication of the Alternate Feed Guidance, NRC recognized that, because alternate feed materials that meet the requirements specified in the Alternate Feed Guidance must be ores, any alternate feed materials that contain greater than 0.05% source material are considered source material under the definition of source material in 10 CFR 40.4 and hence exempt from the requirements of RCRA under 40CFR 261.4(a)(4). See Technical Evaluation Report Request to Receive and Process Molycorp Site Material issued by the NRC on December 3, 2001 (the "Molycorp TER"). As a result, any such alternate feed ores are exempt from RCRA, regardless of whether they would otherwise have been considered to contain listed or characteristic hazardous· wastes. Since the Uranium Material contains greater than 0.05% source material, it is exempt from RCRA, regardless of its process history or constituents, and no further RCRA analysis is required. Further, the Uranium Material has been classified as 11e.(2) byproduct material by NRC under 40 CFR 261.4(a)(4). 11e.(2) byproduct material is exempt from RCRA, and for this reason also the Uranium Material is exempt from RCRA.

Nevertheless, because the Alternate Feed Guidance has not yet been revised to reflect this position recognized by NRC in the Molycorp TER, and because it is not necessary to rely on the NRC's classification of the Uranium Material as 11e.(2) byproduct material (which in fact should be considered determinative of this issue) the remainder of this memorandum will demonstrate that, even if the Uranium Material were not considered source material or 11e.(2) byproduct material, and as such exempt from RCRA, the Uranium Material would not, in any event, contain any RCRA listed hazardous wastes, as required under the Alternate Feed Guidance as currently worded.

2.1 Description of Process which Generated the Uranium Material

This yellowcake conversion process included two primary purification steps: digestion followed by solvent extraction. Digestion occurred by dissolving the uranium in nitric acid. The resulting slurry was subjected to solvent extraction using tributyl phosphate diluted with n-hexane. Process conditions were controlled to extract uranium into the organic phase. The milling impurities remained in the aqueous phase, a dilute nitric acid mixture termed raffinate.

The aqueous raffinate stream is primarily a solution of nitric acid, metallic salts, and trace quantities of uranium and radioactive decay products of natural uranium, primarily Th-230 and Ra-226. The raffinate stream also contained trace quantities of Th-232, which is often found in natural uranium ores. The aqueous raffinate stream was combined with spent sodium hydroxide from nitrous oxide scrubber systems and waste sodium carbonate solutions. The untreated raffinate stream from solvent extraction was pumped to an impoundment and allowed to cool. Anhydrous ammonia was added to the raffinate solution to convert the dilute nitric acid to ammonium nitrate. The final treated raffinate solution was stored in surface impoundments prior to use as an ammonium nitrate fertilizer.

Generation of Raffinate Sludge

The addition of the anhydrous ammonia also increased the pH of the raffinate solution causing the metallic salts and trace quantities of uranium, thorium, and radium to precipitate and settle out in the impoundments as raffinate sludge.

Per the Radioactive Material Profile record ("RMPR"), the chemical reagents used in the above processes included:

- nitric acid
- tributyl phosphate
- n-hexane
- anhydrous ammonia

- barium chloride
- spent sodium hydroxide
- waste carbonate solutions
- recovered weak acids

The presence of residuals of some of these compounds and/or their reaction byproducts would be expected in the Uranium Material, as discussed in the sections below.

The raffinate sludge was transferred by slurry to other storage ponds as necessary. The raffinate sludge was accumulated and stored in several impoundments on site, including Clarifier A basins and Pond 4. No other materials were combined with the stored sludge. The raffinate sludge was eventually consolidated in the Clarifier A basins to support decommissioning of Pond 4 and dewatering of the raffinate sludge.

Treatment of Raffinate Solution Phase

The treated raffinate solution was decanted to another impoundment for further treatment with barium chloride to remove trace levels of radium through co-precipitation. The radium co-precipitate was periodically combined with the raffinate sludge in the other impoundments.

Preparation and Packaging of Dewatered Sludge

The raffinate sludge was slurried from Clarifier A basins and processed through a 225 psi filter press to remove entrained water. The dewatered sludge was placed in one-cubic-yard polypropylene bags. Approximately 11,000 tons (wet weight basis) or 5,000 tons (dry weight basis) or 11,500 bags are stored on site awaiting final recycling or disposal. Based on past experience with similar materials, the quantities could be underestimated. The Mill license amendment therefore contemplates up to approximately 150 percent of those quantities.

3.0 Basis and Limitations of this Evaluation

The Uranium Material to be processed at the Denison White Mesa Mill consists solely of the dewatered raffinate sludge currently stored on site at the Facility.

Physical and chemical properties of the raffinate sludge have been determined at different times to support site characterization activities and treatability studies. The results of those determinations were described in several reports prepared subject to the authority of the State of Oklahoma Department of Environmental Quality and/or the NRC in the process of site decommissioning including the RCRA Facility Investigation Report (RFI) and the Site Characterization Report (SCR).

As discussed in Section 2.0, above, the Uranium Material contains greater than 0.05% source material, and is exempt from RCRA, regardless of its process history or chemical composition, and no further RCRA analysis is required. Also, the Uranium Material has been classified as 11e.(2) byproduct material by NRC under 40 CFR 261.4(a)(4). Because 11e.(2) byproduct material is exempt from RCRA, for this reason also the Uranium Material is exempt from RCRA. The following evaluation of characterization data is provided to demonstrate that even if the Uranium Material were not categorically exempt from RCRA, it is not and does not contain RCRA listed hazardous waste.

The site and Uranium Material characterizations discussed above and enumerated in the following table were performed subject to the authority of the State of Oklahoma Department of Environmental Quality and/or the NRC in the process of site decommissioning. Characterization of the Uranium Material comprised nine analyzed samples from the following locations and conditions:

Condition of Uranium Material	**Sample Name(s)**	**Analyses**	**Number of Samples**
Prior to dewatering	Raw Sludge or Raffinate Sludge or Pond 4 - 1994	Metals, radionuclides, ammonia, nitrate, fluoride	4
Leachate from Uranium Material	Raw Sludge Leachate or Pond 4 Composite - 1994	Metals, radionuclides, ammonia, nitrate, fluoride	1 composite of 4 samples
Prior to dewatering	Raffinate Sludge or Basin 1 of Clarifier A - 1995	VOCs, SVOCs	1
Dewatered Uranium Material	Dewatered Sludge - 2003	Metals, radionuclides, ammonia, nitrate, fluoride	1
Water removed from Uranium Material	Dewatering Filtrate - 2003	Metals, radionuclides, ammonia, nitrate, fluoride	1
Leachate from dewatered Uranium Material	Dewatered Sludge Leachate - 2003	Metals, radionuclides, ammonia, nitrate, fluoride	1

The sampling was representative of a continuous process stream under the control of the generator from a process which did not vary appreciably over time. All analyses were performed by laboratories possessing State of Oklahoma and/or NELAC certification for the analyses performed. As a result, these studies provide sufficiently representative characterization to assess the regulatory status, worker safety environmental hazards, and chemical and processing properties of the Uranium Material.

The following RCRA evaluation is based on information from the following sources:

1. SFC RCRA Facility Investigation Report ("RFI", 1997)
2. Current and historic SFC Uranium Material analytical data.
3. Interviews with Sequoyah Fuels personnel in March 2010.
4. Denison Protocol for Determining Whether Alternate Feeds Are Listed Hazardous Wastes (Denison, November 1999).
5. RMPR for the SFC Uranium Material (February 2010).
6. Basis of Hazardous Material and Waste Determinations from the RMPR (February 2010)
7. Affidavit of John Ellis, SFC President (June 2010).

Denison has developed a "Protocol for Determining Whether Alternate Feed Materials are Listed Hazardous Wastes" (November 22, 1999) ("the Protocol"). The Protocol has been developed in conjunction with, and accepted by, the State of Utah Department of Environmental Quality ("UDEQ") (Letter of December 7, 1999). Copies of the Protocol and UDEQ letter are provided in Attachment 2 of this Report. The RCRA evaluation and recommendations in this Report were developed in accordance with the Protocol.

4.0 Application of Protocol to Uranium Material

4.1 Source Investigation

Several of the information sources enumerated above were used to perform the Source Investigation indicated in Box 1 of the flow diagram (the "Protocol Diagram") that forms part of the Protocol.

The following sections describe the status of the Uranium Material relative to RCRA Characteristic and RCRA Listed Hazardous Waste regulations, and relative to the specific parameters identified in the Denison/UDEQ Hazardous Waste Protocol. Although alternate feed materials are being recycled to recover uranium and hence are permitted to contain constituents that may be considered RCRA characteristic wastes in other circumstances, for completeness, this Report also determines whether or not the Uranium Material contains any such constituents.

4.2 Determination Methods in the Denison / UDEQ Protocol

4.2.1 Regulatory History of the SFC Uranium Material

The NRC issued Source Material License SUB-1010 to Sequoyah Fuels in 1970 for conversion processing of natural uranium concentrates/yellowcake, which process resulted in the generation of the Uranium Material. This License was modified by the NRC from an operational to a reclamation license on September 30, 1990.

In 1993, the U.S. Environmental Protection Agency ("EPA") issued an Administrative Order on Consent ("AOC") requiring that the Facility should be remediated pursuant to RCRA. Pursuant to the AOC, SFC prepared a RCRA Facility Investigation Report and RCRA Corrective Action Plan.

On December 11, 2002, NRC issued Amendment 29 to SFC's Source Material License, classifying the Uranium Material as 11e.(2) byproduct material. In a communication to EPA in 2006, NRC affirmed that:

1. the Site was subject to the regulatory oversight of NRC,
2. the Site therefore was to be decommissioned under 10CFR Part 40, Appendix A, and
3. NRC would ensure that the contaminants addressed by the AOC would be properly managed.

NRC's 2002 communication requested that EPA close their AOC. EPA subsequently terminated the AOC in December 2009.

The Uranium Material, which has materially not changed in form or content since first being produced in 1970, remains definitional source material as per 40 CFR Part 261.4, and is explicitly exempt from regulation under RCRA. It has also been classified as 11e.(2) byproduct material by NRC, and for this reason also is explicitly exempt from regulation under RCRA. However, for the sake of completeness, Denison has required the following evaluation to confirm that even if the Uranium Material were not exempt from RCRA, it is not and does not contain, what would otherwise be considered a RCRA-listed waste, or a RCRA characteristic waste.

The Uranium Material has not been classified or treated as listed hazardous waste nor has it been in contact with any listed hazardous wastes.

3.2.2 Evaluation of Potential RCRA Listings Associated with Specific Contaminants

For potential alternate feeds that are not exempt from RCRA, the Protocol describes additional steps Denison will take to assess whether contaminants associated with any potential RCRA waste listings are present, and the likelihood that they resulted from RCRA listed hazardous wastes or RCRA listed processes. These steps include tabulation of all potential listings associated with each known chemical contaminant in the material, and the review of chemical process and material/waste handling history at the site to assess whether the known chemical contaminants in the material resulted from listed or non-listed sources. This evaluation is described in Box 8 and Decision Diamonds 9 through 11 in the Protocol Diagram.

If the results of the evaluation indicate that the contaminants are not listed waste, the Protocol specifies an additional assessment of whether the data on which this determination was made is sufficiently representative, or whether an ongoing acceptance sampling program should be implemented, and a similar evaluation performed on any new constituents identified during acceptance sampling.

In the case of the Uranium Material, Steps 9 through 11 are not required as indicated by the statements provided in the Affidavit of John Ellis. However, for the sake of a thorough due diligence evaluation, Steps 9 through 11 were completed, and the results are presented below.

5.0 Chemical Contaminants

Determination of whether the Uranium Material is or contained potential RCRA-listed waste included consideration of the source history provided in the RMPR and through interviews with Sequoyah Fuels personnel in March 2010, and the analytical data provided from material sampling analyses presented in the RMPR.

Four samples were collected in March 1994 from Pond 4 for the purpose of determining concentrations of metals and radionuclides in the raffinate sludge; the averages of analytical results of these samples are presented in Table 1 of the RMPR as *Raw Sludge*. A composite sample was developed from these samples for the purpose of collecting a leachate; the analytical results of the leachate are presented in Table 1 of the RMPR as *Raw Sludge Leachate.*

The raffinate sludge in Pond 4 was transferred to Clarifier A basins between 1993 and 1995. A single sample of raffinate sludge was collected from Basin 1 of Clarifier A in January 1995 to determine the concentration of volatile and semivolatile organic compounds; the basis for the selection of constituents was provided as Attachment D1ci to the RMPR. The analytical results of this sample exceeding the respective method detection limits are presented in Table 2 of the RMPR. The results presented in Table 2 are for sludge that had not been subjected to dewatering. The laboratory report of results for each constituent for this sample is provided as Attachment D1cii.

Raffinate sludge was collected in May 2003 from Basin 1 of Clarifier A for the purpose of testing feasibility of dewatering the raffinate sludge using a pressurized plate filter press. After dewatering by the filter press, three samples were developed and analyzed for metals and radionuclides. The three samples included the dewatered sludge, the water expelled from the sludge as a result of dewatering (filtrate), and a leachate derived from the dewatered sludge. The analytical results of these samples are presented in Table 1 as *Dewatered Sludge*, *Dewatering Filtrate*, and *Dewatered Sludge Leachate*, respectively. The laboratory reports for these samples are provided as Attachment D1ciii.

Analyses identified as "Dewatered Sludge" most closely characterize the Uranium Material, as they were collected from the Uranium Material in the dewatered form in which the material will be shipped to the Mill. However, constituents identified in the raw non-dewatered sludge and its leachate may be considered to qualitatively indicate the potential presence of additional constituents, specifically ammonia, nitrate/nitrite, and fluoride, in the Dewatered Sludge.

There were no processes conducted at the site which fall under the category of "F" listed hazardous wastes from non-specific sources as designated in the following seven categories:

- Spent solvent wastes (F001-F005)
- Wastes from electroplating and other metal finishing operations (F006-F012, F019)
- Dioxin-bearing wastes (F020-F023 and F026-F028)
- Wastes from the production of certain chlorinated aliphatic hydrocarbons (F024, F025)

- Wastes from wood preserving (F032, F034, and F035)
- Petroleum refinery wastewater treatment sludges (F037 and F038)
- Multi-source leachate (F039)

There were no processes conducted at the site which fall under the category of "K" listed hazardous wastes from specific sources and designated in the following 13 categories:

- Wood preservation (K001)
- Inorganic pigment manufacturing (K002 –K008)
- Organic chemicals manufacturing (K009-K030, K083, K085, K093-K096, K103-K105, K107-K118, K136, K149-K151, K156-K159, K161, K174-K175, K181)
- Inorganic chemicals manufacturing (K071, K073, K106, K176-178)
- Pesticides manufacturing (K031-K043, K097-K099, K123-K126, K131-K132)
- Explosives manufacturing (K044-K047)
- Petroleum refining (K048-52, K170-K172)
- Iron and steel production (K061-K062)
- Primary aluminum production (K088)
- Secondary lead production (K069, K100)
- Veterinary pharmaceuticals manufacturing (K084, K101-K102)
- Ink formulation (K086)
- Coking (K060, K087, K141-K145, K147-K148)

The Uranium Material does not contain any "P" or "U" listed wastes as it contains no discarded commercial chemical products, off-specification species, container residues, and spill residues thereof. Any chemicals used in the conversion process and treatment process which generated the raffinate sludge/Uranium Material were used for their intended purpose and are not waste materials.

5.1 Volatile Organic Compounds

The analytical results for the total VOCs in indicated that two ketone compounds, 2-butanone (also called methyl ethyl ketone) and 2-hexanone, were reported at very low concentrations in the samples for total analysis. 2-butanone was reported at 0.3 milligrams per kilogram ("mg/kg"). 2-hexanone was reported at 0.08 mg/kg.

Review of the site operational history, processes and chemicals, indicated that neither of these compounds were used or present on the Site. Neither of the compounds has been associated directly or indirectly with the Facility's processes, nor result from the breakdown of chemicals which are associated with the process. Both of these ketones are common laboratory solvents and extractants and multiple laboratory pathways exist that could introduce them during the sample preparation and analytical processes.

Ketones, including 2 butanone, are present in a number of commonly used supplies in labs and field sampling programs, including marker pens, label adhesives, and cleaners. Extensive experience at RCRA, CERCLA, and FUSRAP remediation sites indicates that ketones, including 2 butanone and 2-hexanone, which are common laboratory solvents and analytical standards, are consistently present due to laboratory influences or field sample contamination, and are often not actually site contaminants. The presence of 2-hexanone may also be an impurity in the n-hexane used in SFC's extraction process.

The detection of these two compounds can be inferred to be present due to laboratory influences and the compounds are not likely present as constituents of the Uranium Material.

5.2 Semi-Volatile Organic Compounds

No semi-volatile constituents were detected in the Uranium Material.

5.3 Other Non-Metal Inorganic Compounds

The sampling results for Ammonia, Nitrate/Nitrite, Fluoride, and Phosphorus indicate detectable levels of these constituents in the Uranium Material either prior to or after dewatering.

Dewatered sludge was analyzed for ammonia as nitrogen, nitrate/nitrate as nitrogen and phosphorus. Fluoride was not analyzed in the dewatered sludge samples but was analyzed in the raw non-dewatered sludge. The raw sludge result was interpreted to indicate its potential presence in dewatered Uranium Material.

Evaluation of RCRA listings associated with the analyzed metals is provided in attached Table 1 and summarized below.

5.3.1 Ammonia as N

Ammonia compounds are not RCRA listed wastes. Ammonia is present in the Uranium Material as a result of the anhydrous ammonia added to the residuals of the conversion process to recover dilute nitric acid as ammonium nitrate. No RCRA listings are applicable to the ammonia present in the Uranium Material.

5.3.2 Nitrate/Nitrite as N

Nitrate may carry RCRA listing U217 if it resulted from the disposal of thallium nitrate as commercial chemical products, or manufacturing chemical intermediates. There is no reason that this compound would be present as chemical product, off-spec product, or manufacturing byproduct on the Site. Nitrate/nitrite compounds are present due to the use of nitric acid in the uranium digestion process. The U listing is not applicable to the Uranium Material.

5.3.3 Phosphorus

Phosphorus may carry RCRA listings as follows if it resulted from the disposal of commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates containing the compounds specified below:

U087	O,O-diethyl S-methyl dithiophosphate
U145	lead phosphate
U189	phosphorous sulfide
U24	zinc phosphide
P006	aluminum phosphide
P040	O,O-diethyl O-pyrazinyl phosphate
P041	Diethyl-p-nitrophenyl phosphate

P043	Diisopropylfluorophosphate (DFP)
P085	Octamethyl diphosphoramide
P111	Diphosphoric acid tetraethyl ester (tetraethylpyrophosphate)
P062	Hexaethyl tetraphosphate
P096	Hydrogen phosphide (phosphine)
P039	Phosphorodithioic acid O,O diethyl S-[2-(ethylthio)ethyl diethyl] ester
P094	Phosphorodithioic acid O,O diethyl S--(ethylthio)ethyl diethyl] ester
P109	Tetraethyl dithiopyrophosphate
P122	Zinc phosphide

The above compounds result primarily from the synthesis of pesticides, chemical warfare agents, incendiary weapons, and lead-based fuel additives. None of these compounds were used or present on the Site. None of these compounds has been associated directly or indirectly with Facility processes, nor result from the breakdown of chemicals which are associated with the process.

Phosphorus may carry RCRA listings K037, K038, K039, or K040 if it resulted from wastewaters and byproducts form the synthesis of sulfo- or phospho-pesticides. None of these processes was ever conducted at the Site.

Phosphorus is present as a residual of the tributyl phosphate used in the uranium hexafluoride extraction step. None of the RCRA listings are applicable to the Uranium Material.

5.3.4 Fluorides

Fluorides may carry RCRA listings U005, U033, U075, U134, U121, U120, P043, P056, P057, P058 if they resulted from the disposal of acetamide, carbonic difluoride, dichlorodifluoromethane, fluoranthene, hydrofluoric acid, trichlorofluoromethane, diisopropylfluorophosphate (DFP), fluorine, fluoroacetamide, or fluoroacetic acid.

Fluoride is present as a residual from the addition of fluoride to convert uranium oxide into uranium hexafluoride in the SFC process. None of the above RCRA listings applies to the fluorides present at the Site.

5.4 Metals

A summary of the RCRA evaluation findings for the metal analytes identified in the Uranium Material is provided in Table D1 of the RMPR.

All samples listed in Table 1 of the RMPR were analyzed for all the analytes identified below with one exception. Mercury was not analyzed in the 1994 raw sludge or leachate samples. Other than this exception, all samples were analyzed for total metals and results indicate that the metals, aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, potassium, radium, selenium, sodium, silver, strontium, thallium, vanadium, zinc, and zirconium, were present in the Uranium Material. Evaluation of RCRA listings associated with the analyzed metals is provided in attached Table 2 and summarized below.

5.4.1 Aluminum

Aluminum wastes may be associated with only one RCRA listing, P006, if they resulted from disposal of aluminum phosphide commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. Aluminum phosphide is used as an insecticide and fumigant, and in semiconductor manufacturing. There is no reason this compound would be present as a chemical product, off-spec product or manufacturing byproduct on the Site. Aluminum is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. The P006 listing does not apply to the SFC Uranium Material.

5.4.2 Antimony

Antimony wastes may carry the following K listings if they resulted from the specific industries listed here:

K021	fluoromethane production
K161	dithiocarbamate production
K177	antimony oxide speculative accumulation

None of the above operations or processes was ever conducted at the SFC facility. Antimony is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. None of the K listings are applicable to SFC Uranium Material.

5.4.3 Arsenic

Arsenic wastes can carry RCRA listing U136, P011, or P012 if they resulted (respectively) from the disposal of cacodylic acid, arsenic trioxide, or arsenic pentoxide commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. Cacodylic acid is used as an herbicide for grasses and tree thinning, as a soil sterilizer, and as a chemical warfare agent. Arsenic trioxide is used in production of pigments, enamels aniline colors, and decolorizing glass. It is also used in formulation of insecticides, herbicides, rodenticides, sheep dip products and wood and hide preservatives. Arsenic pentoxide is used in producing arsenates, insecticides and weed killers, for dyes, printing and glass coloring, and in formulation of metal adhesives. There is no reason this any of these compounds would be present as chemical products, off-spec products or manufacturing byproducts on the Site.

Arsenic wastes may carry the following F or K listings if they resulted from the specific industries listed here:

F032, F034, F035	wood treating
F039	leachates from multi-source landfills
K031	cacodylic acid production
K060	coking
K084, K101, K102	veterinary pharmaceuticals
K161	dithiocarbamate production
K171, K172,	petroleum refining

K177 antimony or antimony oxide production

None of the above operations or processes was ever conducted at the SFC facility. Arsenic is a natural constituent in tantalum and tin ores processed at the Site. It is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. None of the F or K listings are applicable to the Uranium Material.

5.4.4 Barium

Barium may be associated with one RCRA listing, P013, if it resulted from the disposal of barium cyanide commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. Barium cyanide is used in metal finishing and electroplating. There is no reason barium would be present as a chemical product, off-spec product, or manufacturing byproduct on the Site.

Barium chloride was added to one of the water treatment impoundments to co-precipitate radium from the decanted raffinate solution and the precipitated barium sludges were periodically combined with raffinate sludge/Uranium Material in other impoundments. Residual barium is present as a byproduct of the raffinate solution treatment and the P013 listing does not apply to the Uranium Material.

5.4.5 Beryllium

Beryllium may be associated with one RCRA listing, P015, if it resulted from the disposal of commercial chemical beryllium powdered products, off-spec commercial chemical products, or manufacturing chemical intermediates. Beryllium is present as a commercial pure product in only a few industrial applications such as nuclear reactor operations, neutron source generators, solid rocket propellants, and inertial guidance systems. There is no reason beryllium would be present as a chemical product, off-spec product or manufacturing byproduct on the Site.

Beryllium is a natural constituent in uranium ores, and concentrates and would be present in trace levels in precipitates from the conversion process at the Site. The P015 listing does not apply to the Uranium Material.

5.4.6 Cadmium

Cadmium wastes may carry the following F or K listings if they resulted from the specific industries listed here:

F006 electroplating
F039 leachates from multi-source landfills
K061 steel furnaces
K064 copper production
K069 lead smelting
K177 antimony or antimony oxide production

None of the above operations or processes was ever conducted at the Site. Cadmium is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. None of the F or K listings are applicable to Uranium Material.

5.4.7 Calcium

Calcium wastes can carry RCRA listing U032 or P021 if they resulted (respectively) from the disposal of calcium chromate or calcium cyanide commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. Calcium chromate is used in the manufacture of pigments, oxidizers, catalysts, medicines, glazes, colored glass, inks and paints. It is also used in anodizing, engraving, etching, dyeing and finished metal cleaning. Calcium cyanide is used as a rodenticide/fumigant for grain and fruit production and storage, in gold leaching operations, and in chemical synthesis of other cyanides. There is no reason any of these compounds would be present as chemical products, off-spec products or manufacturing byproducts on the Site.

It is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. and therefore the U032 and P021 listings do not apply to the Uranium Material.

5.4.8 Chromium

Chromium wastes can carry RCRA listing U032 if they resulted from the disposal of chromic acid commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. Chromic acid is used in the manufacture of pigments, oxidizers, catalysts, medicines, glazes, colored glass, inks and paints. It is also used in anodizing, engraving, etching, dyeing and finished metal cleaning. There is no reason this compound would be present as chemical product, off-spec product or manufacturing byproduct on the Site.

Chromium wastes may carry the following F or K listings if they resulted from the specific industries listed here:

P006	electroplating
P019	aluminum coating
F035	wood treating
F037, F038	petroleum refining
F039	leachates from multi-source landfills
K002, K003	chrome pigment production

None of the above operations or processes was ever conducted at the Facility. Chromium is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. None of the F or K listings are applicable to Uranium Material.

5.4.9 Cobalt

Cobalt is a natural constituent in uranium ores and natural uranium concentrates and would be present in trace levels in precipitates from the conversion process at the Site. Cobalt wastes are not listed under RCRA.

5.4.10 Copper

Copper wastes can carry RCRA listing P029 if they resulted from the disposal of cuprous cyanide or cupric cyanide commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. These compounds are used in electroplating, anti-foulant in paints, insecticides, and as a catalyst for organic synthesis. There is no reason any of these compounds would be present as chemical products, off-spec products, or manufacturing byproducts on the Site.

Copper is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. The P029 listing is not applicable to the Uranium Material.

5.4.11 Iron

Iron is the world's most common metal element, and is present in nearly all background soils, rock, and uranium ores and concentrates. Iron wastes are not listed under RCRA.

5.4.12 Lead

Lead wastes can carry RCRA listings U144, Ul45, U146 or P110 if they resulted from the disposal (respectively) of lead acetate, lead phosphate, lead subacetate, or tetraethyl lead commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. Lead acetate is used in dyeing, pigments, paints, hair coloring, waterproofing and varnishes. It is also used as a laboratory reagent and in cyanide gold leaching. Lead phosphate is used as a stabilizing agent in some plastic resins. Lead subacetate was formerly added to sugar solutions in food products as a decolorizing agent. Tetraethyl lead is synthesized solely as an anti-knock additive in gasoline. There is no reason any of these compounds would be present as chemical product, off-spec product, or manufacturing byproduct on the Site.

Lead wastes may carry the following F or K listings if they resulted from the specific industries listed here:

F035	wood treating
F039	leachates from multi-source landfills
F037, F038, K048, K049, K051, K052	petroleum refining
K002, K003, K005	chrome pigment production
K046	explosive initiator production
K061, K062	iron and steel furnaces
K064	copper production
K069, K100	lead smelting
K086	ink formulation

None of the above operations or processes was ever conducted at the Site. It is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. None of the F or K listings are applicable to Uranium Material.

5.4.13 Lithium

Lithium is a natural constituent in uranium ores and natural uranium concentrates. It is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. Lithium wastes are not listed under RCRA.

5.4.14 Magnesium

Magnesium is a natural constituent in uranium ores and natural uranium concentrates. It is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. Magnesium wastes are not listed under RCRA.

5.4.15 Manganese

Manganese may be associated with one RCRA listing, P196, if it resulted from the disposal of manganese dimethyldithiocarbamate commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. Manganese dimethyldithiocarbaniate is used almost solely as a pesticide. There is no reason manganese dimethyldithiocarbaniate would be present as chemical product, off-spec product, or manufacturing byproduct on the Site.

It is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. The P196 listing does not apply to the Uranium Material.

5.4.16 Mercury

Mercury wastes can carry RCRA listings U151, P065 or P092 if they resulted from the disposal (respectively) of mercury metal, mercury fulminate, or phenyl mercuric acetate commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. Mercury metal product has been used in electrolytic cells, arc lamps, dental amalgams, mirror coatings. It was formerly used in nuclear power reactors and as a boiler fluid, and continues to be used in measurement instruments and as a reaction catalyst. Mercury fulminate is used primarily as an explosive initiator in military explosives, and is too unstable for most other applications. Phenyl mercuric acetate is a microbicide used as a fungicide, spermicide, and anti-mildew agent. There is no reason any of these compounds would be present as chemical product, off-spec product or manufacturing byproduct on the Site.

Mercury wastes may carry K listings K071 or K106 if they resulted from chlorine cell cathode liquid disposal. No chlorine processing was ever conducted at the Facility. It is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. None of the K listings are applicable to the Uranium Material.

5.4.17 Molybdenum

Molybdenum is a natural constituent in uranium ores and natural uranium concentrates and would be present in trace levels in precipitates from the conversion process at the Site. Molybdenum wastes are not listed under RCRA.

5.4.18 Nickel

Nickel wastes can carry RCRA listings P073 or P074 if they resulted from the disposal (respectively) of nickel carbonyl or nickel cyanide commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. Nickel carbonyl and nickel cyanide are both used in electroplating of nickel coatings. Nickel carbonyl is also used as a chemical reagent. There is no reason any of these compounds would be present as chemical product, off-spec product, or manufacturing byproduct on the Site.

Nickel wastes may carry RCRA listing F006 if they resulted from disposal of electroplating sludge. No electroplating was ever conducted at the Site. Nickel is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. The F006 listing is not applicable to Uranium Material.

5.4.19 Potassium

Potassium wastes can carry RCRA listings P098 or P099 if they resulted from the disposal (respectively) of potassium cyanide or potassium silver cyanide commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. Potassium cyanide is used in gold and silver ore processing, electroplating, and as an analytical reagent and insecticide. Potassium silver cyanide is used as an antiseptic and in silver plating. There is no reason either of these compounds would be present as chemical product, off-spec product or manufacturing byproduct on the Site.

Potassium wastes may carry RCRA listing K161 if they resulted from dithiocarbamate production. No organic synthesis was ever conducted at the SFC facility. Potassium is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. The K161 listing is not applicable to the Uranium Material.

5.4.20 Radium

Radium is a natural constituent in uranium ores and natural uranium concentrates a and would be present in trace levels in precipitates from the conversion process at the Site. . Radium wastes are not listed under RCRA.

5.4.21 Selenium

Selenium wastes can carry RCRA listings U204, U205, P103, or P114 if they resulted from the disposal (respectively) of selenious acid, selenium disulfide, selenourea, or thallium selenide commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. Selenious acid and thallium selenide are used for cold blackening and decorative finishes of metals. Selenium disulfide is used in medical preparations. Selenourea is methylated to make protective glass coatings. There is no reason either of these compounds would be present as chemical products, off-spec products, or manufacturing byproducts on the Site.

Selenium is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site, and the U and P listings are not applicable to Uranium Material.

5.4.22 Silver

Silver may be associated with RCRA listings P099 and P104 if it resulted from the disposal of silver potassium cyanide or silver cyanide as commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. There is no reason any of these compounds would be present as chemical product, off-spec product or manufacturing byproduct on the Site.

Silver is a natural constituent in some uranium ores and concentrates and would be present in trace levels in precipitates from the conversion process at the Site, and the U and P listings are not applicable to Uranium Material.

5.4.23 Sodium

Sodium wastes can carry RCRA listing U236 if they resulted from the disposal of dimethyl biphenyl diyl bis(azo)bis amino hydroxyl tetrasodium salt commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates, which are used in research chemistry and biochemistry. They may also carry RCRA listings P058, P105 or P106 if they resulted from the disposal (respectively) of sodium fluoroacetic acid sodium salt, sodium azide, or sodium cyanide commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. Fluoroacetic acid sodium salt is used primarily as a rodenticide. Sodium azide is used in diagnostic medicine, and as an explosive in air bag inflators. Sodium cyanide is used in manufacture of dyes, pigments, nylon, insecticides, and chelating compounds. It is also used in gold and silver extraction, metal treating and cleaning and ore flotation. There is no reason any of these compounds would be present as chemical product, off-spec product or manufacturing byproduct on the Site.

Sodium wastes may carry the RCRA listing K161 if they resulted from dithiocarbamate production. No organic synthesis was ever conducted at the Facility. Sodium is present as a residual of spent sodium hydroxide added to the process during pH adjustment generation of the Uranium Material and remains in precipitates from the conversion process at the Site. The K161 listing is not applicable to SFC Uranium Material.

5.4.24 Strontium

Strontium is the 14^{th} most common element in the earth's crust and can be expected to be a natural constituent in some uranium ores and a trace constituent in some natural uranium concentrates. It can be expected to be present in trace levels in precipitates from the conversion process at the Site. Strontium wastes are not listed under RCRA.

5.4.25 Thallium

Thallium wastes can carry the following RCRA listings if they resulted from the disposal of commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates listed below.

U214 thallium (I) acetate
U215 thallium (I) carbonate
U216 thallium chloride
U217 thallium (I) nitrate
P114 selenious acid dithallium salt
P115 sulfuric acid dithallium salt

Thallium carbonate is used as an analytical standard, and in production of synthetic diamonds. Thallium chloride is used as a chlorination catalyst and as a sun lamp radiation monitor. Thallium nitrate is used to produce green-fire pyrotechnics and as an analytical laboratory standard. Selenious acid and its salts are used for blackening and decorative finishing of product metals. Sulfuric acid dithallium salt is used in ant-killer mixtures. There is no reason any of these compounds would be present as chemical product, off-spec product or manufacturing byproduct on the SFC site. Thallium acetate is used in ore flotation but was not used at the Facility.

Thallium wastes may carry RCRA listing K178 if they resulted from the manufacture of ferric chloride as a byproduct from titanium dioxide production. No ferric chloride processing was ever conducted at the Facility. It is a natural constituent in some uranium ores and would be present in trace levels in precipitates from the conversion process at the Site. The K178 listing is not applicable to the Uranium Material.

5.4.26 Vanadium

Vanadium wastes can carry RCRA listing P120 if they resulted from the disposal of vanadium pentoxide (black flake) commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. There is no reason vanadium compounds would be present as chemical products, off-spec products, or manufacturing byproducts on the Site.

Vanadium is a constituent of natural ores and concentrates and would be present in trace levels in precipitates from the conversion process at the Site. The K178 listing is not applicable to the Uranium Material.

5.4.27 Zinc

Zinc wastes can carry RCRA listings U249, P121, P122, or P205 if they resulted from the disposal (respectively) of low concentration zinc phosphide, zinc cyanide, high concentration zinc phosphide, or zinc dimethyl dithiocarbamate ("Ziram") commercial chemical products, off-spec commercial chemical products, or manufacturing chemical intermediates. Zinc phosphides and Ziram are used solely as rodenticides. Zinc cyanide is used in metal plating, as an insecticide and as a chemical reagent. There is no reason any of these compounds would be present as chemical product, off-spec product, or manufacturing byproduct on the Site.

Zinc wastes may carry the RCRA listing K161 if they resulted from Ziram rodenticide production. No pesticide synthesis was ever conducted at the Facility. Zinc is a natural constituent in soils, plant and animal tissue, and many natural ores including uranium ores and concentrates, and would be present in trace levels in precipitates from the conversion process at the Site. The K161 listing is not applicable to SFC Uranium Material.

5.5 Summary of RCRA Listed Waste Findings

Based on the information presented above, none of the constituents in the Uranium Material would be indicative of RCRA listed hazardous waste, even if the Uranium Material were not already exempt from RCRA as source material and 11e.(2) byproduct material.

6.0 RCRA Characteristics

The Uranium Material is a near-neutral byproduct of dewatering precipitated aqueous sludges. As a result it would not be ignitable, corrosive, or reactive per the RCRA definitions of these characteristics. One Uranium Material sample collected during 1994 and one collected during 2003 were analyzed for RCRA TCLP constituents. No analyzed contaminant exceeded its respective TCLP threshold for RCRA toxicity characteristic as defined in Table 1 of 40 CFR Part 261.24(b).

Therefore, the test results indicate that that the Uranium Material does not have the RCRA characteristic of toxicity. The Affidavit from John Ellis of SFC affirms that the Uranium Material has never been classified for shipment or off-site management as a RCRA characteristic waste. This is consistent with the source of the constituents and the treatment process used to develop the Uranium Material.

As discussed in the introduction to this report, the Uranium Material is exempt from regulation under RCRA; however, even if it were classified as a characteristic hazardous waste, alternate feed materials are permitted to contain RCRA characteristic wastes under NRC's Alternate Feed Guidance (10 CFR 40, Appendix A).

Based on all of the above information, the Uranium Material is not a RCRA characteristic hazardous waste.

7.0 Conclusions and Recommendations

In summary, the following conclusions can be drawn from the RCRA analysis of the Site information presented above:

1. The Uranium Material is not a RCRA listed hazardous waste because it has been classified by NRC as 11e.(2) byproduct material and is therefore exempt from regulation under RCRA.

2. Even if the Uranium Material had not been classified as 11e.(2) byproduct material, the Uranium Material would not be a RCRA listed hazardous waste because it is an ore that has a natural uranium content of greater than 0.05 weight percent, is therefore source material and, as a result, is exempt from regulation under RCRA.

3. Even if the Uranium Material were not 11e.(2) byproduct material or source material, it would not be a RCRA listed hazardous waste for the following additional reasons:

   a) It was generated from a known process under the control of the generator, who has provided the Affidavit declaring that the Uranium Material is not and does not contain RCRA listed hazardous waste. This determination is consistent with Boxes I and 2 and Decision Diamonds 1 and 2 in the Denison/UDEQ Protocol Diagram;

   b) The volatile organic compounds detected at very low concentrations in the Uranium Material can attributed to laboratory contamination and are likely not actual contaminants in the Uranium Material. None of the processes or materials associated with any of the RCRA listings for VOCs or SVOC compounds were ever conducted at the site and none of the listings are applicable. This determination is consistent with Box 8 and Decision Diamonds 9 through 11 in the Denison/UDEQ Protocol Diagram;

   c) None of the metals in the Uranium Material samples came from RCRA listed hazardous waste sources. This determination is consistent with Box 8 and Decision Diamonds 9 through 11 in the Denison/UDEQ Protocol Diagram.

4. The Uranium Material does not exhibit any of the RCRA characteristics of ignitability, corrosivity, reactivity, or toxicity for any constituent.

8.0 References

- Austin, G.T. *Shreve's Chemical Process Industries, Fifth Edition.* McGraw Hill. New York 1984.
- Title 10 Code of Federal Regulations; Chapter I – *Nuclear Regulatory Commission, Part 40 – Domestic Licensing of Source Material: 40.4 – Definitions* (10 CFR 40.4)
- Title 10 Code of Federal Regulations; Appendix A – Nuclear Regulatory Commission, Part 40 – *Domestic Licensing of Source Material: Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material From Ores Processed Primarily for Their Source Material Content* (10 CFR 40 Appendix A)
- Title 40 Code of Federal Regulations; Protection of the Environment, Part 261 – *Identification and Listing of Hazardous Waste: Subpart A, 261.4 – Exclusions: Subpart B – Criteria for Identifying the Characteristics of Hazardous Waste and for Listing Hazardous Waste.*
- Notzl, H. *Sequoyah Fuels Dewatered Tails Process Evaluation for Uranium Recovery.* October 8, 2004
- US EPA Chemical Fact Sheets – accessed at www.epa.gov/chemfact on 10/6/10
- Sax, N. Irving and Lewis, Richard L. Sr. *Hawley's Condensed Chemical Dictionary, 11th Edition.* Van Nostrand Reinhold. New York 1987.

TABLE 1 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH NON-METALS IN SFC DEWATERED SLUDGE

AMMONIA

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
NONE					No U Listings
	NONE				No P Listings
		NONE			No F Listings
			NONE		No K Listings

FLUORIDE

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
U033 Carbonic difluoride, Carbon oxyfluoride, Carbonyl fluoride				Used in organic synthesis for addition of carbon groups to other structures.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
U075 Dichlorodifluoro methane				Used as refrigerant in air conditioners, and direct contact freezing. Used in plastics manufacture, and as solvent and blowing agent.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
U134 Hydrogen fluoride				Catalyst in refinery alkylation, isomerization, condensation, dehydration, and polymerization processes. Used for organic and inorganic flourination reactions, production of fluorine gas and aluminum fluoride, some uranium leaching processes, and as additive to solid rocket propellant.	No. Fluoride is present as a residual from the conversion of yellowcake to uranium hexafluoride in the SFC process. Hydrogen fluoride present in the sludge is a result of process use, not disposal, of the product.
	P043 Diisoproplyfluorophosp hate			Insecticide	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P056 Fluorine			Production of metallic fluorides and fluorocarbons, fluoridation compounds for toothpaste and water treatment.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P057 2-fluoroacetamide			Primarily as a rodenticide.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P058 Fluoroacetic acid sodium salt			Primarily as a rodenticide.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
		NONE			No F Listings
			NONE		No K Listings

TABLE 1 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH NON-METALS IN SFC DEWATERED SLUDGE

INORGANIC NITRATES[2]

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
NONE					No U Listings
	NONE				No P Listings
		NONE			No F Listings
			NONE		No K Listings

PHOSPHORUS

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
U087 O,O-diethyl S-methyl dithiophosphate				Synthesis of pesticides, chemical warfare agents.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
U145 Lead phosphate				Used as a stabilizing agent additive in plastic formulation.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
U189 Phosphorus sulfide, Phosphorus trisulfide				Synthesis of pesticides, chemical warfare agents.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
U249 Zinc phosphide				Synthesis of pesticides, chemical warfare agents, used as rodenticide.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P006 Aluminum phosphide			Synthesis of pesticides, chemical warfare agents, insecticide, fumigant, semiconductor technology.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P039 Phosphorodithioic acid O,O diethyl S-[2-e(thylthio) ethyl diethyl] ester (malathion)			Fruit fly insecticide.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P040 O,O-diethyl O-pyrazinyl phosphate			Synthesis of thionazin insecticide, fungicide, namtatocide, chemical warfare agents.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P041 Diethyl-p-nitrophenyl phosphate (parathion)			Synthesis of pesticides, chemical warfare agents. Insecticide and acaicide.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P043 Diisopropylfluorophosphate (DFP)			Synthesis of pesticides, chemical warfare agents.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P062 Hexaethyl tetraphosphate (HETP)			Synthesis of pesticides, chemical warfare agents; contact insecticide	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P085 Octamethy			Synthesis of pesticides, chemical warfare agents. Systemic insecticide toxic to plant-chewing insects.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.

TABLE 1 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH NON-METALS IN SFC DEWATERED SLUDGE

	diphosphoramide (schradan)				
	P096 Hydrogen phosphide (phosphine)			Organic chemical synthesis, doping agent for semiconductors, polymerization initiator, condensation polymerization catalyst.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P094 Phosphorodithioic acid O,O diethyl S-etheylthio) ethyl diethyl] ester			Synthesis of pesticides, chemical warfare agents, thion pesticides.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P109 Tetraethyl dithiopyrphosphate (TEDP or sulfotepp)			Insecticides, chemical warfare agents.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P111 Diphosphoric acid tetraethyl ester			Synthesis of pesticides, chemical warfare agents, incendiary weapons, stabilizer for organic peroxides.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P122 Zinc phosphide			Synthesis of pesticides, chemical warfare agents, used as rodenticide.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
		NONE			No F Listings
			K037	Wastewater treatment sludges from the production of disulfoton.	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K038	Wastewater from the wsshing and stripping of phorate	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K039	Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K040	Wastewater treatment sludges from the production of phorate	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

ALUMINUM

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
NONE				---	No U Listings
	P006 Aluminum phosphide			Insecticide, fumigant, semiconductor manufacturing.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
		NONE		---	No F Listings
			NONE	---	No K Listings

ANTIMONY

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
NONE				---	No U Listings
	NONE			---	No P Listings
		NONE		---	No F Listings
			K021 Spent catalyst from fluoromethane production		No. SFC material is not from this industry. Also, antimony is present primarily as an accessory metal in the tungsten ores, which is not a listed waste source.
			K161 Purification solids, baghouse dust and floor sweepings from dithiocarbamate acids production		No. SFC material is not from this industry. Also, antimony is present primarily as an accessory metal in the tungsten ores, which is not a listed waste source.
			K177 Slag from production or speculative accumulation of antimony or antimony oxides		No. SFC material is not from this industry. Also, antimony is present primarily as an accessory metal in the tungsten ores, which is not a listed waste source.

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

ARSENIC

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
U136 Dimethyl arsenic acid (cacodylic acid)				Used as herbicide for Johnson grass on cotton, in timber thinning, as a soil sterilizing agent, and as a chemical warfare agent.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P011 Arsenic trioxide			Used in production of pigments, aniline colors, ceramic enamels, and decolorizing glass, insecticides, herbicides, rodenticides, wood and hide preservatives, and sheep dip.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P012 Arsenic Pentoxide			Used in production of aresenates, insecticides, dyeing and printing, weed killers, and colorization of glass. Also used in metal adhesives.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
		F032 Wastewater from wood preserving processes using creosote and pentachlorophenol			No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
		F034 Wastewater from wood preserving processes using creosote and pentachlorophenol			No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
		F035 Wastewaters from wood preserving processes using inorganic preservatives			No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
		F039 Leachates from land disposal of wastes F20 to F22 and F26 to F28		---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K021 Spent catalyst from fluoromethane production	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K031 Byproduct salts from MSMA and cacodylic acid production	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K060 Ammonia still lime sludge from coking	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K084 Wastewater sludge from veterinary pharmaceutical production	---	No. SFC material is not from this industry. Also arsenic is present primarily as an accessory metal in the uranium ores and concentrates, which are not listed waste sources.
			K101 Distillation tar residues from veterinary pharmaceutical production	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

			K102 Residue from decolorization of veterinary pharmaceuticals	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K161 Purification solids, baghouse dust and floor sweepings from dithiocarbamate acids production	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K171 Spent hydrotreating catalyst from petroleum refining	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K172 Spent hydrorefining catalyst from petroleum refining	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K177 Slag from production or speculative accumulation of antimony or antimony oxides	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.

BARIUM

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
NONE				---	No U Listings
	P013 Barium Cyanide			Used in metallurgy and electroplating.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site. Barium resulted from addition of barium chloride for radium removal in the SFC sludge.
		NONE		---	No F Listings
			NONE	---	No K Listings

BERYLLIUM

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
NONE				---	No U Listings
Beryllium	---	P015 Beryllium powder		Beryllium powder is used in the aerospace industry, as a neutron reflector in nuclear reactor shielding, solid rocket fuel, and in X-ray tubes. Also used in alloys and parts in gyroscopes, guidance system components, instrumentation and controls such as solenoids, relays, and switches.	There would be no reason for powdered beryllium to be present as pure product, byproduct or off-spec product at SFC.
		NONE		---	No F Listings
			NONE	---	No K Listings

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

COPPER

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
NONE				---	No U Listings
	P029 Cuprous or Cupric Cyanide			Used in metallurgy and electroplating, insecticides, anti-foulants in paints, catalysts in organic synthesis..	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site. Copper is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
		NONE		---	No F Listings
			NONE	---	No K Listings

CADMIUM

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
NONE				---	No U Listings
	NONE			---	No P Listings
		F006 Wastewater sludge from electroplating		---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
		F039 Leachates from land disposal of wastes F20 to F22 and F26 to F28		---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K061 Steel electric furnace emission control dust/sludge	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K064 Acid plant blowdown thickener slurry/sludge from primary copper production blowdown	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K069 Emission control dust/sludge from secondary lead smelting	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K177 Slag from production or speculative accumulation of antimony or antimony oxides		No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

CALCIUM

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
U032 Calcium chromate				Used as a pigment, corrosion inhibitor, oxidizing agent, battery depolarizer, coatin g for light metal alloys.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P021 Calcium cyanide			Rodenticide, fumigant for greenhouses, flour mills, grain, seed, and citrus trees, gold leaching, and synthesis of other cyanides.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
		NONE		---	No F Listings.
			NONE	---	No K Listings.

CHROMIUM

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
U032 Chromic acid or calcium salt of chromic acid				Used in manufacture of pigments, oxidizers, catalysts, medicines, ceramic glazes, colored glass, inks, paints, plating, anodizing, engraving, plastic etching, and textile dyeing, and metal cleaning.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	NONE				No P Listings
		F006 Wastewater treatment sludge from electroplating		---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
		F019 Wastewater treatment sludge from chemical coating of aluminum		---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
		F035 Wood treating wastewater		---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
		F037 Refinery oil/water separator solids		---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
		F038 Refinery secondary oil/water separator solids		---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
		F039 Leachates from land disposal of wastes F20 to F22 and F26 to F28		---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

			K002 Wastewater treatment sludge from production of chrome yellow pigment	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K003 Wastewater treatment sludge from production of chrome molybdate orange pigment	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K004 Wastewater treatment sludge from production of zinc yellow pigment	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K005 Wastewater treatment sludge from production of chrome green pigment	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K006 Wastewater treatment sludge from production of chrome oxide green pigments	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K007 Wastewater treatment sludge from production of iron blue pigments.	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K008 Oven residue from production of chrome oxide green pigments	--	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K048 Petroleum refining dissolved air flotation ("DAF") solids	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K049 Petroleum refining slop oil emulsion solids	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K050 Heat exchanger bundle cleaning sludge form petroleum refining	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources..
			K051 Petroleum refining API separator solids	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources..
			K061 Steel electric furnace emission control dust/sludge	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K062 Iron and steel manufacturing pickle liquor	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K069 Emission control dust/sludge from secondary lead smelting	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K086 Solvent, caustic and water wash sludges from ink formulation	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

			K090 Emission control dust or sludge from ferrochromium silicon production	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.

COBALT

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
NONE				---	No U Listings.
	NONE			---	No P Listings.
		NONE		---	No F Listings.
			NONE	---	No K Listings.

IRON

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
NONE				---	No U Listings.
	NONE			---	No P Listings.
		NONE		---	No F Listings.
			NONE	---	No K Listings.

LEAD

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
U 144 lead acetate				Textile dyeing, chrome pigments, gold cyanide leaching, lab reagent, hair dye. May be present as antifoulant in paints, waterproofing, varnishes.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
U 145 lead phosphate				Stabilizing agent added to plastic resins.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
U146 lead subacetate				Decolorizing agent added to sugar solutions in food products.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P110 Tetraethyl lead			Synthesized solely as a gasoline anti-knock additive.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

		F035 Wood treating wastewater		---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
		F037 Refinery oil/water separator solids		---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
		F038 Refinery secondary oil/water separator solids		---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
		F039 Leachates from land disposal of wastes F20 to F22 and F26 to F28		---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K002 Wastewater treatment sludge from production of chrome yellow pigment	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K003 Wastewater treatment sludge from production of chrome molybdate orange pigment	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K005 Wastewater treatment sludge from production of chrome green pigment	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K046 Wastewater treatment sludge from production of lead based explosive initiators	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K048 Petroleum refining dissolved air flotation ("DAF") solids	---	No. SFC material is not from this industry. Also lead is present primarily as an accessory metal in the tantalum ores, which is not a listed waste source.
			K049 Petroleum refining slop oil emulsion solids	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K051 Petroleum refining API separator solids	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K052 Petroleum refining leaded tank bottoms	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K061 Steel electric furnace emission control dust/sludge	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K062 Iron and steel manufacturing pickle liquor	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K064 Acid plant blowdown thickener slurry/sludge from primary copper production blowdown	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

			K069 Emission control dust/sludge from secondary lead smelting	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K086 Solvent, caustic and water wash sludges from ink formulation	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K100 Waste solution from acid leaching of emission control dust/sludge from secondary lead smelting	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.

LITHIUM

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
NONE				---	No U Listings
	NONE			---	No P Listings
		NONE		---	No F Listings
			NONE	---	No K Listings

MAGNESIUM

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
NONE				---	No U Listings
	NONE			---	No P Listings
		NONE		---	No F Listings
			NONE	---	No K Listings

MANGANESE

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
NONE				---	No U Listings

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

	P196 Manganese dimethyldithio carbamate			Primarily as a pesticide.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
		NONE		---	No F Listings
			NONE	---	No K Listings

MERCURY

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
U151 Mercury metal Hg				Dental amalgams, organic and inorganic reaction catalyst, cathodes for chlorine/ caustic production cells, mirror coating, vapor and arc lamps, nuclear power reactors, boiler fluids. Also present in instruments and used in extractive metallurgy.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P065 Mercury Fulminate			Due to relatively high detonation velocity, used primarily as an explosive initiator in military explosives. Too unstable for most other uses.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P092 Acetato-O-phenyl mercury or phenyl mercuric acetate			Used as a fungicide, anti-mildew agent, and as a topical spermicide	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
		NONE		---	No F Listings
			K071 Brine purification muds from mercury cell chlorine production	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.
			K106 Wastewater treatment sludge from mercury cell chlorine production	---	No. SFC material is not from this industry. Also it is present primarily as an accessory metal in uranium ores and concentrates, which are not listed waste sources.

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

MOLYBDENUM

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
NONE				---	No U Listings
	NONE			---	No P Listings
		NONE			No F Listings
			NONE		No K Listings

NICKEL

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
NONE				---	No U Listings
	P073 Nickel carbonyl			Electroplated nickel coatings, reagent chemical	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P074 Nickel Cyanide			Metallurgy, electroplating	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
		F006 Wastewater treatment sludge from electroplating		---	
			NONE	---	No K Listings

POTASSIUM

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
NONE				---	No U Listings
	P098 Potassium cyanide			Extraction of gold and silver from ores, reagent in analytical chemistry, insecticide, fumigant, electroplating.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P099 Potassium silver cyanide			Silver plating, bactericide, antiseptic.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
		NONE			No F Listings
			K161 Metam-sodium Purification solids, baghouse dust and sweepings form dithiocarbamate production.	Dithiocarbamate production	No K Listings

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

RADIUM

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
NONE				---	No U Listings
	NONE			---	No P Listings
		NONE			No F Listings
			NONE		No K Listings

SELENIUM

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
U204 Selenious acid or selenium dioxide				Selenious acid and its salts are used for cold blackening of metal parts for model building and decorative finishes.	No. There would be no reason for this compound to be present as pure product or byproduct on site.
U205 Selenium sulfide or selenium disulfide				Preparation of topical dermal and scalp medications.	No. There would be no reason for this compound to be present as pure product or byproduct on site.
	P103 Selenourea			Production of dimethyl selenourea for safety glass coatings	No. There would be no reason for this compound to be present as pure product or byproduct on site.
	P114 Selenious acid dithallium salt, Selenious acid dithallium salt, Thallium selenide, Thallium selenite, Ancimidol			Selenious acid and its salts are used for cold blackening of metal parts for model building and decorative finishes.	No. There would be no reason for this compound to be present as pure product or byproduct on site.
		NONE		---	No F Listings
			NONE	---	No K Listings

SILVER

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
NONE				---	No U Listings

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

	P099 Potassium bis (cyano-c) (1) argentate Silver potassium cyanide			Silver plating, bactericide, antiseptic	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P104 Silver cyanide			Used in silver plating.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
		NONE		---	No F Listings
			NONE	---	No K Listings

SODIUM

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
U236 3,3'-[(3,3'-dimethyl[1,1'-biphenyl]-4,4'-diyl)bis(azo)bis[5-amino-4-hydroxy]-,tetrasodium salt				---	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P058 Fluoroacetic acid sodium salt			Rodenticide	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P105 Sodium azide			Air bag inflator, intermediate in explosive manufacture, preservative in diagnostic medicines.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P106 Sodium Cyanide			Manufacture of dyes, pigments, nylon, chelating compounds, insecticides, fumigants. Extraction of gold and silver from ores, electroplating, metal cleaning, heat treatment, ore flotation.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
		NONE			No F Listings
			K161 Metam-sodium Purification solids, baghouse dust and sweepings form dithiocarbamate production.	Dithiocarbamate production	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

STRONTIUM

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
NONE				---	No U Listings
	NONE			---	No P Listings
		NONE			No F Listings
			NONE		No K Listings

THALLIUM

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
U214 Thallium (I) acetate				High specific gravity solutions for ore flotation.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
U215 Thallium (I) Carbonate				Laboratory standard for analysis for carbon disulfide, synthesis of artificial diamonds.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
U216 Thallium chloride				Chlorination catalyst, sun lamp monitors.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
U217 Thallium (I) nitrate				Analytical standard, green-fire pyrotechnics.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P114 Selenious acid dithallium salt, Thallium selenide, Thallium selenite, Ancimidol			Selenious acid and its salts are used for cold blackening of metal parts for model building and decorative finishes.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P115 Sulfuric acid dithallium salt			Pesticide, ant-killer	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
		NONE		---	No F Listings
			K178 Residues from manufacturing and storage of ferric chloride from acids from titanium dioxide production	---	No. SFC material is not from this industry. Also, thallium is present primarily as an accessory metal in the tantalum ores, which is not a listed waste source.

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

THORIUM

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
NONE				---	No U Listings
	NONE			---	No P Listings
		NONE			No F Listings
			NONE		No K Listings

VANADIUM

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
NONE				---	No U Listings
	P120 Vanadium pentoxide			---	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
		NONE			No F Listings
			NONE		No K Listings

ZINC

Commercial Chemicals Acutely Toxic U List	**Commercial Chemicals Acutely Hazardous P List**	**Non-Specific Sources F List**	**Specific Sources K List**	**Industrial Uses and Sources of U or P Listed Element or Compound**	**Is This Listing Applicable to SFC Sludge?**
U249 Zinc phosphide (10 wt. % or less)				Rodenticide	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P121 Zinc cyanide			Metal plating, chemical reagent, insecticide.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P122 Zinc phosphide (greater than10 wt. %)			Rodenticide	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
	P205 Zinc dimethyl dithiocarbamate, Ziram			Fungicide, accelerator in rubber synthesis.	No. There would be no reason for this compound to be present as pure product, byproduct, or off-spec product on site.
		NONE		---	No F Listings
			K161 Ziram pesticides	Rodenticide	No. SFC material is not from this industry. Also, zinc is present primarily as an accessory metal in the tantalum ores, which is not a listed waste source.

TABLE 2 (Rev. 0): SUMMARY OF POTENTIAL RCRA LISTINGS IN 40 CFR 261 and APPENDIX VII ASSOCIATED WITH METALS IN SFC DEWATERED SLUDGE

ZIRCONIUM

Commercial Chemicals Acutely Toxic U List	Commercial Chemicals Acutely Hazardous P List	Non-Specific Sources F List	Specific Sources K List	Industrial Uses and Sources of U or P Listed Element or Compound	Is This Listing Applicable to SFC Sludge?
NONE				---	No U Listings
	NONE			---	No P Listings
		NONE			No F Listings
			NONE		No K Listings

ATTACHMENT 5

Review of Chemical Contaminants in SFC Uranium Material to Determine Worker Safety and Environmental Issues and Chemical Compatibility at the Denison Mines White Mesa Mill

Technical Memorandum

To:	David C. Frydenlund	**From:**	Jo Ann Tischler
Company:	Denison Mines (USA) Corp.	**Date:**	December 15, 2011
Re:	Review of Chemical Contaminants in Sequoyah Fuels Uranium Material to Determine Worker Safety and Environmental Issues and Chemical Compatibility at the White Mesa Mill	**Project #:**	
CC:			

1.0 Introduction

This report summarizes the characterization of the Sequoyah Fuels Corporation ("SFC") Uranium Material (the "Uranium Material"), also referred to as the dewatered raffinate sludge to be transported from the SFC Gore, Oklahoma facility, to determine whether processing the Uranium Material at the Denison Mines (USA) Corp. ("Denison") White Mesa Mill (the "Mill") may pose any worker safety or environmental hazards, or may be incompatible with the Mill's existing tailings system. The results will provide information to Denison to determine the requirements, if any, for changes to worker safety practices, or potential incompatibilities to the Mill for the processing of Uranium Material as an alternate feed material. This report will also provide comparison of constituents of the Uranium Material and the Denison groundwater ("GW") monitoring program to identify any constituents which are not covered under the Denison GW monitoring program and whether these additional parameters need to be added to the sampling requirements.

The following questions were considered for the evaluation of potential safety and environmental hazards and compatibility with the Mill's tailings system and GW monitoring requirements:

1) Will any constituents of the Uranium Material volatilize at the known conditions on the Mill site or in the Mill circuits? If so, will they create any potential environmental, worker health, or safety impacts?
2) Will the Uranium Material or any of its constituents create a dust or off-gas hazard at the known conditions on the Mill site or in the Mill circuit? If so, will they create any potential environmental, worker health, or safety impacts?
3) Will any constituents of the Uranium Material react with other materials in the Mill circuits?
4) Will any constituents of the Uranium Material create any impacts on the tailings system?
5) Does the Uranium Material contain any constituents that are not present in the current Mill GW monitoring program and not sufficiently represented by the Mill's groundwater monitoring analyte list and need to be added to the analyte list?

6) What, if any, limitations on feed acceptance criteria or added operational controls are recommended in connection with processing the Uranium Material at the Mill?

An evaluation of the regulatory status of the Uranium Material relative to the Resource Conservation and Recovery Act ("RCRA") regulations is provided in a separate technical memorandum.

2.0 Basis and Limitations of This Evaluation

The Uranium Material to be processed at the Mill consists solely of the dewatered raffinate sludge currently stored on site at the Gore Facility.

The following contamination evaluation is based on:

The evaluation in this memorandum is based on information from the following sources:

1. SFC RCRA Facility Investigation Report ("RFI") (1997).
2. Current and historic SFC Uranium Material analytical data.
3. Interviews with Sequoyah Fuels personnel in March 2010.
4. Denison Protocol for Determining Whether Alternate Feeds Are Listed Hazardous Wastes (Denison, November 1999).
5. Radioactive Material Profile record ("RMPR") for the SFC Uranium Material (February 2010).
6. Basis of Hazardous Material and Waste Determinations from the RMPR (February 2010)
7. Affidavit of John Ellis, SFC President (June 2010).
8. Current technical literature from the internet and other sources on performance of liner materials

3.0 Site History and Background

The SFC Gore, Oklahoma facility (the "Facility" or the "Site") is a former uranium conversion facility that operated from 1970 to 1993. The facility was constructed and operated by SFC, as a subsidiary of Kerr-McGee Nuclear Corporation. In 1983 Kerr-McGee Nuclear Corporation split into Quivira Mining Corporation and SFC, which maintained control of the Gore Facility. SFC was sold to General Atomics Corporation in 1988 and continued to operate the facility until 1993.

From 1970 to 1993, the facility chemically converted uranium ore concentrates (yellowcake) to uranium hexafluoride under U.S. Nuclear Regulatory Commission ("NRC") Source Materials License Number SUB-1010. From 1987 to 1993, the facility also converted depleted uranium hexafluoride into depleted uranium tetrafluoride in a different circuit. The Uranium Material consists only of residuals from the conversion of natural uranium yellowcake to uranium hexafluoride.

3.1 Description of Process which Generated the Uranium Material

This yellowcake conversion process included two primary purification steps: digestion followed by solvent extraction. Digestion occurred by dissolving the uranium in nitric acid. The resulting slurry was subjected to solvent extraction using tributyl phosphate diluted with n-hexane. Process conditions were controlled to extract uranium into the organic phase. The milling impurities remained in the aqueous phase, a dilute nitric acid mixture termed raffinate.

The aqueous raffinate stream is primarily a solution of nitric acid, metallic salts, and trace quantities of uranium and radioactive transformation products of natural uranium, primarily Th-230 and Ra-226. The aqueous raffinate stream was combined with spent sodium hydroxide from nitrous oxide scrubber systems and waste sodium carbonate solutions. The untreated raffinate stream from solvent extraction was pumped to an impoundment and allowed to cool. Anhydrous ammonia was added to the raffinate solution to convert the dilute nitric acid to ammonium nitrate. The final treated raffinate solution was stored in surface impoundments prior to use as an ammonium nitrate fertilizer.

Generation of Raffinate Sludge

The addition of the anhydrous ammonia also increased the pH of the raffinate solution causing the metallic salts and trace quantities of uranium, thorium, and radium to precipitate and settle out in the impoundments as raffinate sludge.

Per the RMPR, the chemical reagents used in the above processes included:

- nitric acid
- tributyl phosphate
- n-hexane
- anhydrous ammonia
- barium chloride
- spent sodium hydroxide
- waste carbonate solutions
- recovered weak acids

The presence of residuals of some of these compounds and/or their reaction byproducts would be expected in the Uranium Material, as discussed in the sections below.

The raffinate sludge was transferred by slurry to other storage ponds as necessary. The raffinate sludge was accumulated and stored in several impoundments on site, including Clarifier A basins and Pond 4. No other materials were combined with the stored sludge. The raffinate sludge was eventually consolidated in the Clarifier A basins to support decommissioning Pond 4 and dewatering of the raffinate sludge.

Treatment of Raffinate Solution Phase

The treated raffinate solution was decanted to another impoundment for further treatment with barium chloride to remove trace levels of radium through co-precipitation. The radium co-precipitate was periodically combined with the raffinate sludge in the other impoundments.

Preparation and Packaging of Dewatered Sludge

The raffinate sludge was slurried from Clarifier A basins and processed through a 225 psi filter press to remove entrained water. The dewatered sludge was placed in one cubic yard polypropylene bags. Approximately 11,000 tons (wet weight basis) or 5,000 tons (dry weight basis) or 11,500 bags are stored on site awaiting final recycling or disposal.

4.0 Assumptions Regarding White Mesa Mill Processing of the Uranium Material

This evaluation was based on the following process assumptions:

1. The Mill will process the Uranium Material in the main circuit either alone or in combination with natural ores or other alternate feeds.
2. The Uranium Material will be delivered to the Mill by truck in SuperSaks of approximately 0.95 tons each, and approximately 21 bags per truckload. The bags will be shipped in truck trailers with poly-lined bottoms and sides, either box-style trailers, or flatbed style trailers with sidewalls and tarp covers.
3. The Supersaks will be unloaded from the trucks onto the ore pad for temporary storage until the material is scheduled for processing.
4. The Uranium Material will be added to the circuit in a manner similar to that used for the normal processing of conventional ores and other alternate feed materials. It will either be dumped into the ore receiving hopper and fed to the SAG mill, run through an existing trommel or grizzly, before being pumped to Pulp Storage, or may be fed directly to Pulp Storage.
5. The Mill does not anticipate any significant modifications to the leaching circuit or recovery process areas for the processing of the Uranium Material.
6. The Uranium Material may be processed in combination with other approved alternate feed materials.
7. Tailings from processing of the Uranium Material will be sent to Cell 4A or Cell 4B or a comparable new tailings cell.

5.0 Chemical Composition of the Uranium Material

Physical and chemical properties of the raffinate sludge have been determined at different times to support site characterization activities and treatability studies. The results of those determinations were described in several reports prepared subject to the authority of the State of Oklahoma Department of Environmental Quality and/or the NRC in the process of site decommissioning, including the RCRA Facility Investigation Report (RFI) and the Site Characterization Report (SCR).

SFC determined the list of constituents for analyses based on the US EPA May 1989 Interim Final RCRA Facility Investigation Guidance (the "RFI Guidance"). Analyses were conducted for the constituents specified in the RFI Guidance for the mining industry, the inorganic chemicals industry, and the non-ferrous metals industry, with the following exceptions:

1. Analyses were performed for two additional metals, calcium and molybdenum, beyond those listed in the RFI Guidance

2. Analysis was not performed for organochlorine pesticides. Pesticides were not produced, stored in bulk, spilled or disposed at the Facility. Organochlorine

pesticides would only be present in site soils at residual levels typical of their intended end use.

3. Samples were not analyzed for dibenzo(c,g) carbazole, dibenzo (a,h) pyrene, dibenzo (a,i) pyrene and chloroacetaldehyde. None of these compounds were produced, used or stored at the Facility nor are they breakdown products from any chemicals used at the Facility.

The selection of constituents, numbers of samples, and characterizations enumerated above were approved by and performed subject to the authority of the State of Oklahoma Department of Environmental Quality and/or the NRC in the process of site decommissioning. Characterization of the Uranium Material comprised nine analyzed samples from the locations and conditions identified in Table 1.

The sampling was representative of a continuous process stream under the control of the generator from a process which did not vary appreciably over time and was accepted by the Oklahoma Department of Environmental Quality and the NRC as indicated by these agencies' approval of the respective closure plan documents developed based on the characterization. All analyses were performed by laboratories possessing State of Oklahoma and/or NELAC certification for the analyses performed.

As a result, these studies provide sufficiently representative characterization to assess the regulatory status, worker safety environmental hazards, and chemical and processing properties of the Uranium Material.

Table 1: Summary of Analytical Studies on Sequoyah Fuels Uranium Material

Condition of Uranium Material	Sample Name(s)	Analyses	Number of Samples
Prior to dewatering	Raw Sludge or Raffinate Sludge or Pond 4 - 1994	Metals, radionuclides, ammonia, nitrate, fluoride	4
Leachate from Uranium Material	Raw Sludge Leachate or Pond 4 Composite - 1994	Metals, radionuclides, ammonia, nitrate, fluoride	1 composite of 4 samples
Prior to dewatering	Raffinate Sludge or Basin 1 of Clarifier A - 1995	VOCs, SVOCs	1
Dewatered Uranium Material	Dewatered Sludge - 2003	Metals, radionuclides, ammonia, nitrate, fluoride	1
Water removed from Uranium Material	Dewatering Filtrate - 2003	Metals, radionuclides, ammonia, nitrate, fluoride	1
Leachate from dewatered Uranium Material	Dewatered Sludge Leachate - 2003	Metals, radionuclides, ammonia, nitrate, fluoride	1

5.1 Organic Constituents

5.1.1 Volatile Organic Compounds

Based on knowledge of the process controlled by the generator, no organic hazardous constituents were produced, used, or stored at the Facility. As expected, analyses for all volatile and semi-volatile constituents were non-detectable with the exception of 2-butanone (methyl ethyl ketone) and 2-hexanone.

Each of these ketones were detected at levels very near its practical quantitation limit - 0.3 mg/kg versus a PQL of 0.1 for 2-butanone, and 0.08 versus a PQL of 0.05 for 2-hexanone. Both of these ketones are common laboratory solvents and are also present in adhesives, marker pens, and inks associated with the sampling process. Based on the foregoing information, the detection of both of these compounds should be considered as anomalous or as due to laboratory or sampling influences.

Both of these ketones are highly volatile. Even if they were present at these trace levels in the Uranium Material at the Facility in the pond sludges, the filling, shipping, unloading, and emptying of the SuperSaks would volatilize these compounds to non-detectable levels at the Mill.

5.1.2 Semi-volatile Organic Compounds

No semi-volatile constituents were detected in the Uranium Material.

5.2 Inorganic Constituents

Analyses of inorganic constituents is provided in the analytical reports included with the RMPR and summarized in Attachments D.1 of the RMPR.

5.2.1 Non-Metal Inorganic Compounds

Ammonia as N

Anhydrous ammonia was added to the residuals of the conversion process to recover dilute nitric acid as ammonium nitrate. Ammonia was added at controlled rates sufficient to react and convert the dilute nitric acid to a marketable ammonium nitrate fertilizer product. Ammonia was not analyzed in the raw or dewatered sludge because it was not expected to be present above trace levels.

Nitrate/Nitrite as N

Nitrate/nitrite compounds entered the Facility process due to the use of nitric acid in the uranium digestion step. The average nitrate level (as nitrogen) analyzed in the raw sludge samples was 42,400 mg/kg prior to dewatering. Nitrate was not analyzed in the dewatered sludge primarily because it was not expected to be present above trace levels. Nitrate was reacted with anhydrous ammonia to produce the ammonium nitrate fertilizer mentioned above. In addition, nitrate is extremely soluble in nearly all mineral forms. If any trace had remained in the raw sludge, it would partition in the filter press primarily to the filtrate (aqueous) phase, not the dewatered sludge phase.

Phosphorus

Phosphorus is present as a residual of the tributyl phosphate used in the uranium hexafluoride extraction step. Phosphorus, which will be present in the phosphate form, was analyzed at 19,600 mg/kg in the dewatered sludge that comprises the Uranium material. This level is well within the level present in other alternate feeds already approved for processing at the Mill, which have ranged as high as 262,000 mg/kg of phosphorus in the phosphate form.

Fluorides

The average fluoride level analyzed in the raw sludge samples was 23,118 mg/kg prior to dewatering. Fluoride was not analyzed in the dewatered sludge or dewatering filtrate water. For conservatism, it has been estimated that the concentration in the dewatered sludge will be equivalent to the concentration in the raw sludge. This assumption is overly conservative because fluoride is extremely soluble in many mineral forms and would partition in the filter press primarily to the filtrate (aqueous) phase, not the dewatered sludge phase. Nonetheless, for conservatism it has been assumed that the dewatered filtrate would also contain 23,118 mg/kg of fluoride. This level is well within the level present in other alternate feeds already approved for processing at the Mill, such as the Fansteel alternate feed material, which contained concentrations ranging up to 396,000 mg/kg.

5.2.2 Metals

The three Uranium Material samples were analyzed for total metals, total alkali metals, and total alkaline earth metals. According to the sampling results, 26 non-radioactive metals and metalloids were present in the Uranium Material. These constituents can be categorized based on their elemental characteristics and chemical properties as indicated in Table 2.

Table 2: Classes of Metals in SFC Uranium Material

Class	Component of the Uranium Material
Alkali Metals	Lithium, Sodium, Potassium
Alkaline Earths	Barium, Beryllium, Calcium, Magnesium, Strontium
Transition Metals	Cadmium, Chromium, Cobalt, Copper, Iron, Manganese, Mercury, Molybdenum, Nickel, Silver, Thallium, Vanadium, Zinc
Other Metals	Aluminum, Lead
Metalloids	Antimony, Arsenic, Selenium

With the exception of barium, all species listed in Table 2, above, are natural constituents in uranium ores, are expected to be present in uranium concentrates (yellowcake) processed at the Facility, and are expected to be present in sludges precipitated from yellowcake impurities. Barium was introduced as barium chloride, which was added to the raffinate solution for co-precipitation of radium.

The Uranium Material samples were not analyzed for their actual mineral composition, that is, the compound form(s) in which each constituent is present. However, sufficient process knowledge of the Facility process exists to reasonably assess the forms for each constituents, as discussed under each class constituent, below.

Based on knowledge of the Gore plant process and pond treatment process, some conclusions can be drawn about the mineral form of the metals identified in the characterization analyses. These are discussed in the remainder of section 5.2.2 below.

None of the incompatibilities described below or in Table 3 are applicable to the components as they will be present in the Uranium Material. None of the components will be present in pure/reduced metal form or as pure metal oxides. None of the fluoridated, sulfite, or cyanide, compound or hydroxylated (caustic forms) of the alkali metals or alkaline earths are expected to be present. None of the components will be exposed to any of the incompatible agents identified in the table.

Alkali Metals

The alkaline earths metals, lithium, sodium, and potassium are natural constituents in uranium ores, are expected to be present in uranium concentrates (yellowcake) processed at the Facility, and are expected to be present in sludges precipitated from yellowcake impurities. All of the components are expected to be present in inert hydrate, chloride, sulfate, or other soluble salt forms, compatible with the aqueous solutions in the Mill's acid digestion and feed circuit. In addition, since all the constituents entered the process in mineralized forms and were further reacted with mineral acids, none will be present in pure or reduced metal form. Because the Uranium Material is approximately pH neutral, none of the alkaline earths will be present in alkali hydroxide (caustic) forms; all will have been precipitated as other salts or complexes. Since the pond materials are wet or dewatered sludges that have not been fired or calcined, none of the alkaline earths will be present as oxides.

Alkaline Earths

The alkali metals, beryllium, calcium, magnesium, and strontium, whether or not they have been analyzed in specific ores processed at the Mill, are natural constituents in uranium ores, are expected to be present in uranium concentrates (yellowcake) processed at the Facility, and are expected to be present in sludges precipitated from yellowcake impurities. E.g. strontium, while not specifically analyzed for in ores at the Mill, is the 14^{th} most abundant metal in the earth's crust and can be expected to be present in natural soils, natural ores and product concentrates from natural ores. All of the components are expected to be present in inert hydrate, chloride, sulfate, carbonate, or other soluble salt forms, compatible with the aqueous solutions in the Mill's acid digestion and feed circuit. Because the Uranium Material is approximately pH neutral, none of the alkali metals will be present in hydroxides (caustic) forms; all will have been precipitated as other salts or complexes. In addition, since all the constituents entered the process in mineralized forms and were further reacted with mineral acids, none will be present in pure or reduced metal form. Since the pond materials are wet or dewatered sludges that have not been fired or calcined, none of the metals will be present as oxides.

Barium is present as a result of the barium chloride added to the raffinate solution for co-precipitation of radium prior to discharge at the Facility. Barium was used to form inert non-reactive precipitates with radium.

Transition Metals

The transition metals, cadmium, chromium, cobalt, copper, iron, manganese, mercury, molybdenum, nickel, silver, thallium, vanadium, zinc are expected to be present in uranium concentrates (yellowcake) processed at the Facility, and are expected to be present in sludges precipitated from yellowcake impurities. All of the components are expected to be present in inert hydrate, chloride, sulfate, or other soluble salt forms, compatible with the aqueous solutions in the Mill's acid digestion and feed circuit. In addition, since all the constituents entered the process in mineralized forms and were further reacted with mineral acids, none will be present in pure or reduced metal form. Since the pond materials are wet or dewatered sludges that have not been fired or calcined, none of the metals will be present as oxides.

Other Metals

The other metals, aluminum and lead are expected to be present in uranium concentrates (yellowcake) processed at the Facility, and are expected to be present in sludges precipitated from yellowcake impurities. All of the components are expected to be present in inert hydrate, chloride, sulfate, or other soluble salt forms, compatible with the aqueous solutions in the Mill's acid digestion and feed circuit. In addition, since all the constituents entered the process in mineralized forms and were further reacted with mineral acids, none will be present in pure or reduced metal form. Since the pond materials are wet or dewatered sludges that have not been fired or calcined, none of the metals will be present as oxides.

Metalloids

The metalloids, antimony, arsenic, and selenium, are expected to be present in uranium concentrates (yellowcake) processed at the Facility, and are expected to be present in sludges precipitated from yellowcake impurities. All of the components are expected to be present in inert hydrate, chloride, sulfate, or other soluble salt forms, compatible with the aqueous solutions in the Mill's acid digestion and feed circuit. In addition, since all the constituents entered the process in mineralized forms and were further reacted with mineral acids, none will be present in pure or reduced metal form. Since the pond materials are wet or dewatered sludges that have not been fired or calcined, none of the metalloids will be present as oxides.

5.3 Potential Effects in Mill Process

The Uranium Material is a near-neutral byproduct of dewatering precipitated aqueous sludges. The metals in the Uranium Material are expected to be in the form of metal hydrates, hydroxides, sulfates, chlorides, and other inert salts, minerals, and complexes compatible with the aqueous and aqueous acid solutions in the Mill's feed area and leach circuits. The cations and metals in natural ores are also present in hydrate, sulfate, chloride, and other inert salt, mineral, and complex forms.

Most of the metal species resulting from natural ores in the Uranium Material are present at parts per million ("ppm") levels or lower (or at percent levels in the highest case). The Uranium Material is a semi-moist filter cake with approximately 55% moisture/45% solids. Similar to natural ores, it may be introduced into the Mill through the grizzly or a trommel for size reduction, at which time it would be contacted with water sprays, further reducing the relative solids content (and therefore the concentrations of constituents). The concentrations of these constituents will be further reduced by introduction into the leach circuit, where they will be present at fractional ppm levels or lower in large volumes of aqueous acid solution. These constituents will be processed in the same manner as natural uranium ores processed at the Mill and will be discharged to the Mill tailings system just as the uranium ores currently are.

The majority of the soluble mineral salts will be converted to sulfate salt forms in the leach system. The insoluble forms will be precipitated with the solids removed from the Mill circuit.

All the known Uranium Material components in their anticipated mineral states are compatible with aqueous sulfuric acid, which will be used for leaching the Uranium Material, and any other chemicals and materials to which they may be exposed in the Mill following the leach circuit.

Since the metal salts are expected to be converted to insoluble sulfates or other insoluble precipitates, it can be assumed that the non-uranium constituents that enter the leach system will leave the leach system, proceed no further than the Counter-current Decantation ("CCD") step or Tank 11A or 11B, and be discharged from the circuit to the tailings.

Some of the metal hydroxides and metal sulfates, in the forms in which they will enter the Mill, are known to decompose at high temperatures, breaking down into volatile oxide forms (such as As_2O_5 decomposing to a trioxide). However, as described above,

1) The metal salts and other cation salts will be short-lived in the process, as they will be converted into sulfates in the leach acid.
2) The same types of metal sulfates have been introduced into the Mill in thousands of tons of natural ore, and similarly processed with no exposure to, or effects from, high temperature,
3) Like natural ores, the metal salts will not be exposed to any conditions that can produce gaseous byproducts.

The sulfate forms are stable and non-reactive and will be precipitated from the circuit in post-leach steps and discharged to the tailings system.

5.3.1 Alkaline Earth Metals

Although in some circumstances, the introduction of oxides of the alkaline earths in sufficient quantities into an acid leach circuit has the potential to result in unwanted excess chemical reactivity, this situation will not occur from the processing of the Uranium Material at the Mill. As described above, none of the alkaline earths will be present as pure metals, or in the highest oxidation state (oxide) form. Hazards associated with pure metals and oxides are not applicable and will not be discussed further.

All other compound and complex forms of the alkaline earths anticipated in the Uranium Material are compatible with either acid or alkaline leach solutions and any other process chemicals to which they may be exposed in the Mill circuit. They will be precipitated as sulfates or other insoluble salts, and discharged to the tailings. They do not pose any incompatibility hazards in the Mill process.

Barium chloride was added to the raffinate solution to co-precipitate radium. The average barium concentration in the feed is 4,150 mg/kg or ppm. The data from Cell 3 indicate that barium has historically been introduced into the Mill process, and the assumption is that barium will also be present in the Cell 4A and 4B tailings. Barium concentrations as high as 43,000 ppm have been processed at the Mill with no adverse process effects, environmental impacts, or safety issues. Incompatible materials listed for barium sulfate include phosphorous and aluminum. The barium will not be exposed to these materials, and the addition of sulfuric acid at the Mill will not create any additional worker safety or environmental hazards from contact with barium.

5.3.2 Transition Metals

Although in some circumstances, the introduction of oxides of the transition metals in sufficient quantities into an acid leach circuit has the potential to result in unwanted excess chemical reactivity, this situation will not occur from the processing of the Uranium Material at the Mill. As described above, none of the transition metals will be present as pure metals, or in the highest oxidation state (oxide) form. Hazards associated with pure metals and oxides are not applicable and will not be discussed further.

All other compound and complex forms of the transition metals anticipated in the Uranium Material are compatible with either acid or alkaline leach solutions and any other process chemicals to which they may be exposed in the Mill circuit. They will be precipitated as sulfates or other insoluble salts, and discharged to the tailings. They do not pose any incompatibility hazards in the Mill process.

5.3.3 Other Metals

Although in some circumstances, the introduction of oxides of the other metals in sufficient quantities into an acid leach circuit has the potential to result in unwanted excess chemical reactivity, this situation will not occur from the processing of the Uranium Material at the Mill. As described above, none of the other metals will be present as pure metals, or in the highest oxidation state (oxide) form. Hazards associated with pure metals and oxides are not applicable and will not be discussed further.

All other compound and complex forms of the other metals anticipated in the Uranium Material are compatible with either acid or alkaline leach solutions and any other process chemicals to which they may be exposed in the Mill circuit. They will be precipitated as sulfates or other insoluble salts, and discharged to the tailings. They do not pose any incompatibility hazards in the Mill process.

5.3.4 Metalloids

Although in some circumstances, the introduction of oxides of the metalloids in sufficient quantities into an acid leach circuit has the potential to result in unwanted excess chemical reactivity, this situation will not occur from the processing of the Uranium Material at the Mill. As described above, none of the metalloids will be present as pure metals, or in the highest oxidation state (oxide) form. Hazards associated with pure metals and oxides are not applicable and will not be discussed further.

All other compound and complex forms of the metalloids anticipated in the Uranium Material are compatible with either acid or alkaline leach solutions and any other process chemicals to which they may be exposed in the Mill circuit. They will be precipitated as sulfates or other insoluble salts, and discharged to the tailings. They do not pose any incompatibility hazards in the Mill process.

5.3.5 Non-Metals

Nitrates have been introduced into the Mill's circuit with natural ores and alternate feeds at levels as high as 350,000 mg/kg. Nitrates were not analyzed in the dewatered sludge which comprises the Uranium Material because they were not anticipated to be present above trace levels. The Mill has handled nitrate compounds in the Mill circuit and tailings system with no adverse process, environmental, or safety issues.

Fluorides have been introduced into the Mill's circuit with natural ores and alternate feeds at levels as high as 460,000 mg/kg. Fluorides were not analyzed in the dewatered sludge which comprises the Uranium Material because they were not anticipated to be present above trace levels. The Mill has handled fluoride compounds in the Mill circuit and tailings system with no adverse process, environmental, or safety issues.

Ammonia was not analyzed in the dewatered sludge which comprises the uranium material because it was not anticipated to be present above trace levels. Anhydrous ammonia gas or high concentrations of ammonium hydroxide solutions are incompatible with strong oxidizers, halogen gases, acids, and salts of silver and zinc. If trace quantities of ammonia are present, they will not be present as anhydrous ammonia gas or high concentration ammonium hydroxide and will not contact halogen gases at any time in the Mill process. If traces of ammonia are present in the reactive form (ammonium hydroxide) it will be at concentrations too low to react with the silver and zinc already present in the Mill tailings, or with the moderate oxidizer that may be added in the Mill acid leach circuit.

5.3.6 Organic Compounds

As discussed in Section 4.1, no semi-volatile compounds were detected in the Uranium Material. The levels of two volatile organic compounds detected were so near the practical quantitation limits that their detection was most likely due to laboratory influences, not presence in the Uranium Material.

6.0 Potential Worker Safety Issues

The Uranium Material is expected to have an average moisture content of approximately 55 percent, which will minimize the potential for dusting. If required, normal dust controls, including central vents to a scrubber system utilized at the Mill can be implemented to minimize any worker exposure to dusts from unloading operations. In addition, normal operations in this area require the use of worker personal protective equipment for prevention of dust inhalation and skin exposure; therefore, normal worker protections already in place will be sufficient to prevent exposure to any additional metal oxides, sulfates, or nitrates during processing of the Uranium Material.

7.0 Radiation Safety

The Uranium Material is derived from natural uranium ores, or through contact of surface or groundwater with these ores. The Uranium Material contains the same radionuclides as natural ores; however the concentrations of the isotopes vary somewhat from natural ores. The derived air concentrations, radiation protection measures, and emissions control measures used for ores and other alternate feeds at the Mill are sufficiently protective for the processing of the Uranium Material.

8.0 Potential Air Emissions Impacts

The introduction of a solid powder like the Uranium Material to any process may produce two potential forms of air emissions: fugitive dusts, and/or hazardous gases. Discussions in the previous sections demonstrate that engineering controls already in place at the Mill will prevent the generation or dispersion of both of these types of emissions. The Uranium Material will have a moisture content of approximately 55 percent, which will minimize dusting. In addition, the impurities will almost immediately be converted to sulfates or other stable aqueous ionic forms, which are non-volatile and produce no off gases.

Because the metals and ions in the Uranium Material are present at ppm levels, they are not expected to generate a significant increase in load on the existing bag-house system and air pollution control devices even if they reach the air control system as solids from potential spills in the pre-leach area.

9.0 Potential Effects on Tailings System

9.1 Tailings Cell Liner Material Compatibility

The Uranium Material will be received as a moist solid filter cake from management of aqueous pond materials at the Facility. A portion of this material may be insoluble in the acid leach process at the Mill and therefore, the discharge sent to tailings may contain some solid material ("sand"). The remainder of the Uranium Material will be soluble and therefore be contained in the liquid phase after processing in the leach system. Tailings from processing of the Uranium Material will be sent to one of two tailings cells at the Mill, Cell 4A or Cell 4B or to a similarly designed new cell. The solutions from the Uranium Material tailings will be recirculated through the Mill process for reuse. The sands will be only a portion of the total mass of Uranium Material sent to the Mill from the Site. However, assuming a worst case scenario that all of the solid material ends up as sand in the tailings, it is estimated that for the main processing circuit, the additional load to the tailings is minimal.

Cell 4A and 4B both have high-density polyethylene ("HDPE") liners. Cell 4A was placed into service in October of 2008 and received conventional ore tailings sands and, since July 2009, conventional ore tailings solutions. Cell 4B was authorized for use and placed into service in February 2011, and has received conventional ore tailings solutions. However, it can be assumed that over the life of these two tailings cells, each will receive a comparable combination of tailings solutions and solids, from both conventional ores and alternate feeds, as did tailings Cell 3. Hence, it is reasonable to use known information on the composition of Cell 3, currently in the process of final filling and closure, to represent the ultimate composition of either Cell 4A or 4B.

The constituents in the tailings sands and liquids resulting from the processing of Uranium Materials are not expected to be significantly different from those resulting from processing of conventional ores either in composition or in concentration of constituents. Table 4 indicates that all of the constituents found in the Uranium Material have been processed in the Mill's main circuit and/or the alternate feed circuit and are present in the tailings system.

Except for the organic constituents, the constituents to be added to the Mill process are similar to conventional ores.

According to Gulec, et al. (2005), a study on the degradation of HDPE liners under acidic conditions (synthetic acid mine drainage), HDPE was found to be chemically resistant to solutions similar to the tailings solutions at the Mill. Mitchell (1985) studied the chemical resistivity of PVC and HDPE at a pH range of 1.5 to 2.5 standard units using sulfuric acid. This study concluded that PVC performed satisfactorily under these conditions and HDPE performed better and was overall more stable under these acidic conditions.

As described above, it is expected that most of the metal and non-metal impurities entering the leach system with the Uranium Material will be converted to sulfate ions, precipitated, and eventually discharged to the tailings system.

Every metal and non-metal cation and anion component in the Uranium Material already exists in the Mill's tailings system and/or is analyzed under the GW monitoring program. A summary of the potential tailings composition before and after processing the Uranium Material is presented in Table 4. Although tailings from the Uranium Material will be placed in Cell 4A or 4B, Table 4 is based on composition data from tailings Cell 3, which has historically received both ores and alternate feeds.

Every component in the Uranium Material has been:

1. detected in analyses of the tailings cells liquids;
2. detected in analyses of tailings cells solids;
3. detected in analyses of alternate feed materials licensed for processing at the Mill; or
4. detected in process streams or intermediate products when previous alternate feeds were processed at the Mill; or, at concentrations that are generally comparable to the concentrations in the Uranium Material.

As can be seen from Table 4, none of the constituents in the Uranium Material is estimated to raise the current concentration of the tailings system more than one tenth of one percent, and in some cases, due to the low levels in the Uranium Material, the resulting concentration in tailings is expected to go down.

The constituents in the Uranium Material, are expected to produce no incremental additional environmental, health, or safety impacts in the Mill's tailings system beyond those produced by the Mill's processing of natural ores or previously approved alternate feeds. Since the impacts of all the impurities on the tailings system are already anticipated for normal Mill operations, and permitted under the Mill's license, they have not been re-addressed in this evaluation.

9.2 Groundwater Monitoring Program

One difference in the milling process of Uranium Material and disposal of tails in the tailings cells at the Mill is the introduction of barium to the tailings system. The chemistry of the tailings cells would limit the mobility of barium due to the abundance of sulfate in the tailings cells. The insolubility of barium in the presence of sulfate is generally consistent regardless of the liquid medium. That is, the solubility of barium sulfate in cold water is 0.022 mg/L and in concentrated sulfuric acid is 0.025 mg/L (Handbook of

Chemistry and Physics, 68th Edition). At the listed concentrations of sulfate in the tailings solutions (67,600 mg/L to 87,100 mg/L in Cell 4A or 29,000 to 190,000 mg/l in Cell 3), a change in the barium concentration in the tailings solutions of 17 ppm (0.002 percent) would be negligible. Therefore, given the strong tendency of barium to partition to solids, especially in the presence of sulfate, there is no reasonable potential for barium to migrate to ground water from the tailings cells at the Mill in the unlikely event of a leak in the tailings cells. Calcium K_d value in UDEQ Statement of Basis for the Groundwater Discharge Permit (December 1, 2004) contains published K_d values for calcium of 5 to 100 L/kg for sandy to clayey soils. The K_d for barium is 100 to 150,000 L/kg for the same soil types, indicating less mobility in groundwater. Denison has therefore concluded that barium is sufficiently represented by monitoring for calcium and has identified no technical reason to add barium to the list of constituents monitored in ground water in the vicinity of the tailings cells.

Excluding barium, chemical and radiological make-up of the Uranium Material is similar to other ores and alternate feed materials processed at the Mill, and their resulting tailings will have the chemical composition of typical uranium process tailings, for which the Mill's tailings system was designed. As a result, the existing groundwater monitoring program at the Mill will be adequate to detect any potential future impacts to groundwater.

10.0 Conclusions and Recommendations

While elevated levels of certain constituents in the Uranium Material may be present, no additional material management requirements during handling and processing will be required. The Mill has successfully implemented processing of previous alternate feeds with similar or higher concentrations of each constituent contained in the Uranium Material. For example, the Mill has successfully processed and recovered uranium from uranium-bearing salts, calcium fluoride precipitates, recycled metals, metal oxides, and calcified product, all of which posed potential chemical reactivity and material handling issues comparable to or more significant than those associated with this Uranium Material.

Based on the foregoing information, it can be concluded that:

1. All the constituents in the Uranium Material have either been reported to be, or can be assumed to be, already present in the Mill tailings system or were reported in other alternate feeds processed at the Mill, at levels generally comparable to those reported in the Uranium Material.

2. All the constituents in the Uranium Material have either been reported to be, or can be assumed to be, previously introduced into the Mill process, with no adverse effects to the process, or worker health and safety.

3. All the known impurities in the Uranium Material have either been reported to be, or can be assumed to be, previously introduced into the Mill tailings impoundments, with no adverse effects to the tailings system, or human health and safety.

4. No constituent in the Uranium Material will raise the respective concentration in tailings more than a fraction of a percent and, in some cases, the resulting concentrations of constituents in tailings will be reduced.

5. There will be no significant incremental environmental impacts from the processing of Uranium Material beyond those that are already anticipated in the Environmental Impact Statements for the Mill.

6. Spill response and control measures designed to minimize particulate radionuclide hazards will be more than sufficient to manage chemical hazards from the constituents of the Uranium Material.

11.0 References

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- Title 10 Code of Federal Regulations; Chapter I – *Nuclear Regulatory Commission, Part 40 – Domestic Licensing of Source Material: 40.4 – Definitions* (10 CFR 40.4)
- Title 10 Code of Federal Regulations; Appendix A – Nuclear Regulatory Commission, Part 40 – *Domestic Licensing of Source Material: Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material From Ores Processed Primarily for Their Source Material Content* (10 CFR 40 Appendix A)
- Title 40 Code of Federal Regulations; Protection of the Environment, Part 261 – *Identification and Listing of Hazardous Waste: Subpart A, 261.4 – Exclusions: Subpart B – Criteria for Identifying the Characteristics of Hazardous Waste and for Listing Hazardous Waste.*
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Table 3: Incompatibilities and Chemical Hazards for Components of Uranium Material

Component	Chemical Symbol	Maximum Concentration Reported (mg/kg in dewatered sludge unless noted)	Incompatibilities	Will constituent be present in this chemical form?	Will constituent be exposed to these incompatible agents?
Aluminum	Al	160,000	As Al_2O_3 – chlorine trifluoride, hot chlorinated rubber, acids, oxidizers	No	None present except acid.
			As Al – Strong oxidizers and acids, halogenated hydrocarbons	No	None present except sulfuric acid
			As pure powder - varies	No	---
			As Al salts and alkyls - varies	No. Aqueous solutions on ly	---
Ammonia	NH4	2,880 mg/L in dewatering filtrate	Strong oxidizers, halogens, acids, salts of silver and zinc	No. Will only be present as ammonium salts in wet filter cake or aqueous solution.	None present except sulfuric acid.
Antimony	Sb	78.4	As metal and powder – strong oxidizers, acids, halogenated acids	No.	None present except sulfuric acid.
Arsenic	As		As metal and inorganic compounds – strong oxidizers, bromine azide	Yes. As inorganic salts	No. None present except moderate oxidizers only, if used.
			As organic compounds - varies	No.	---
			As AsH_3 (arsine) – strong oxidizers, chlorine, nitric acid	No.	No.
Barium	Ba	4,150	As Barium oxides – reacts with water to form hydroxides; reacts with N_2O_4, hydroxylamines, SO_3, H_2S	No. .	No. Will already be in aqueous or wet filter cake form
Beryllium	Be	18.1	As BeO – gives off toxic gases in fire	No.	---
Cadmium	Cd	<267	As CdO – reacts with magnesium, decomposes on heating to form cadmium fumes	No.	No.
Calcium	Ca	114,000	As Ca oxides – react with water	No.	Will already be in aqueous or wet filter cake form.
			As Ca hydroxides – react with water	No.	Will already be in aqueous or wet filter cake form.
			As $CaSO_4$ – diazomethane, aluminum, phosphorous, water	Yes.	None present except water. Will already be in aqueous or wet filter cake form.

Table 3: Incompatibilities and Chemical Hazards for Components of Uranium Material

Component	Chemical Symbol	Maximum Concentration Reported (mg/kg in dewatered sludge unless noted)	Incompatibilities	Will constituent be present in this chemical form?	Will constituent be exposed to these incompatible agents?
			As $CaSiO_3$ or $CaOSiO_2$ - none	Yes	---
Chromium	Cr	605	As CrO_2 - none	No.	---
			As CrO_3 – combustible materials (paper, wood, silfur, aluminum, plastics)	No.	No.
Cobalt	Co	133	As CoO - none	No.	---
Copper	Cu	2,360	As CuO – acetylene, zirconium	No.	No.
Fluoride	F	23,118 in raw undewatered sludge	Varies with compound form. As inorganic salts - none	Yes.	---
Iron	Fe	1164,000	As Fe_2O_3 – calcium hypochlorite, carbon monoxide, hydrogen peroxide	No.	No.
			As $Fe_2(SO_4)_3$ – decomposes at high temperature	No.	No.
			As $As_2Fe_2O_6$ – decomposes on heating to yield fumes of arsenic and iron	No.	No.
Lead	Pb	1,010	As PbO – strong oxidants, aluminum powder, sodium; also decomposes on heating to form lead fumes	No.	No. None present except moderate oxidizers only, if used.
Lithium	Li	<2.67	As LiH – strong oxidizers, halogenated hydrocarbons, acids, water	No.	No. None present except moderate oxidizers only, if used.
Magnesium	Mg	7,190	As $MgCO_3$ – acids, formaldehyde	No.	None present except sulfuric acid.
			As MgO – chlorine, trifluoride, phosphorus pentachloride	No.	No.
Manganese	Mn	1,930	As $Mn(OH)_3$ MN_2O_3, MnO - none	No.	---
Mercury	Hg	1.41	As metal and inorganic compounds – acetylene, ammonia, chlorine dioxide, azides, calcium, sodium carbide, lithium, rubidium, copper	Yes, but only as wet filter cake or aqueous solution.	No.
			As organic compounds – strong oxidizers such as chlorine gas	No.	No.
Molybdenum	Mo	10,700	As metal – strong oxidizers	No.	No. Moderate oxidizers only, if used.

Table 3: Incompatibilities and Chemical Hazards for Components of Uranium Material

Component	Chemical Symbol	Maximum Concentration Reported (mg/kg in dewatered sludge unless noted)	Incompatibilities	Will constituent be present in this chemical form?	Will constituent be exposed to these incompatible agents?
			As soluble compounds - varies	Yes.	---
Nickel	Ni	1,660	As NiO- iodine, H_2S	No.	No.
Nitrates/Nitrites	NOx	42,400 in raw undewatered sludge	None reported	Yes.	---
Phosphorus	P	553	As phenylphosphine, phorate, phosdrin – none reported.	No.	---
			As phospine - air, oxidizers, chlorine, acids, moisture, halogenated hydrocarbons, copper.	No.	No. None present except sulfuric acid.
			As phosphoric acid – strong caustics, most metals.	No.	No.
			As P_4 – Air, oxidizers, sulfur, strong caustics, halogens.	No.	No.
			As phosphorus oxychloride – water, combustible materials, carbon disulfide, dimethyl formamide, metals (except nickel and lead).	No.	Will already be in wet filter cake or aqueous form.
Potassium	K	2,785	As KCN – strong oxidizers (such as acids, acid salts, chlorates, and nitrates).	No.	No.
			As KOH - acids, water, metals, halogenated hydrocarbons, maleic anhydride. Will not be present in these forms.	No.	No. None present except water and sulfuric acid.
Selenium	Se	348	As SeO - none	No.	---
Silver	Ag	90.8	As Ag_2O – fire and explosion hazard with organic material or ammonia	No.	No. Will not be exposed to ammonia in circuit.
Sodium	Na	7,480	As Na_2AlF_6 – strong oxidizers	No.	No. Moderate oxidizers only, if used
			As NaN_3 –acids, metals, water	No.	No. None present except sulfuric acid.
			As Sodium bisulfate (dry product) - heat	No. Will only be present in wet filter cake or aqueous solution.	No.
			As NaCN – strong oxidizers (such as acids,	No.	No.

Table 3: Incompatibilities and Chemical Hazards for Components of Uranium Material

Component	Chemical Symbol	Maximum Concentration Reported (mg/kg in dewatered sludge unless noted)	Incompatibilities	Will constituent be present in this chemical form?	Will constituent be exposed to these incompatible agents?
			acid salts, chlorates, nitrates)		
			As NaF – strong oxidizers	No.	No.
			As Sodium fluoroacetate – none reported	No.	---
			As NaOH – water, acids, flammable liquids, organic halogens, aluminum, tin, zinc, nitromethane	No.	No. None present except sulfuric acid.
			As sodium metabisulfite - heat	No.	---
Strontium	Sr	1,210	None reported	Yes.	---
Thallium	Tl	5,860	Varies with compound	Will only be present in wet filter cake or aqueous solution.	---
Vanadium	V	<1.60	As dust or fume - lithium, chlorine trifluoride	No. Will only be present in wet filter cake or aqueous solution.	No.
Zinc	Zn	<751	As ZnO - none	No.	---

Note: None of the above incompatibilities are applicable to the components as they will be present in the SFC Uranium Material. None of the components will be present in pure/reduced metal form or as pure metal oxides. None of the fluoridated, sulfite, or cyanide, compound or hydroxylated (caustic forms) of the alkali metals or alkaline earths are expected to be present. None of the components will be exposed to any of the incompatible agents identified in the table.

All of the components are expected to be present in inert hydrated, nitrated, or other soluble salt forms, compatible with the aqueous solutions in the Mill's acid digestion and feed circuit.

Table 4 Comparison of Uranium Material to Tailings and Alternate Feeds

Component	A Estimated Average Conc. in Uranium Material (mg/L or ppm)[1]	B Estimated Mass in Uranium Material (tons)[2]	C Conc. Range in Mill Tailings before Processing Uranium Material (mg/L or *ppm*)[3A]	D Estimated Average Conc. in Mill Tailings before Processing Uranium Material (mg/L or ppm)[3B, 3C]	E Estimated Current Mass in Mill Tailings (tons)[4]	F Mass in Mill Tailings after Uranium Material Processing (tons)[5]	G Conc. in Mill Tailings after Uranium Material Processing (ppm)[6]	H Increase in Mill Tailings Conc. after Uranium Material Processing (ppm)[7]	I Increase in Mill Tailings Conc. after Uranium Material Processing (%)[8]	J Conc. in Ores and Other Alternate Feed Materials (mg/L or ppm)[9,10, 11]
Aluminum (Al)	160,000	1,203.20	330-2,530	3,154	5,680	6,883.6	3,806	652.2	0.065	2,000-133,000
Antimony (Sb)[12]	78.4	0.59	<20	20	36	36.6	20	0.2	0.000	0.01-120
Arsenic (As)	3,030	22.79	0.3-440	149	269	291.3	161	12.0	0.001	3.5-16,130
Barium (Ba)[12]	4,150	31.21	0.021-0.1	28	50	81.6	45	17.1	0.002	21-43,000
Beryllium (Be)	18.7	0.14	0.347-0.78	1.00	2	1.9	1	0.1	0.000	1-105
Cadmium (Cd)	267	2.01	1.64-6.6	1.0	2	3.8	2	1.1	0.000	0.004-59,000
Calcium (Ca)	114,000	857.28	90-630	1,052	1,895	2,751.9	1,522	469.6	0.047	up to 217,000
Cobalt (Co)	133	1.00	14-120	83.0	149	150.5	83	0.2	0.000	9-350,400
Chromium (Cr)[12]	605	4.55	1.0-13	24.0	43	47.8	26	2.4	0.000	8-16,000
Copper (Cu)	2,360	17.75	2,110-8,000	230	415	432.4	239	8.9	0.001	8-296,000
Iron (Fe)	164,000	1,233.28	1,080-3,400	2,608	4,697	5,930.3	3,279	671.1	0.067	up to 54,000
Lithium (Li)	2.67	0.02	1,080-3,401	17.2	31	31.0	17	-0.1	0.000	up to 810
Lead (Pb)	1,010	7.60	0.21-6.0	4	7	14.8	8	4.2	0.000	9-236,000
Magnesium (Mg)	7,190	54.07	1,800-7,900	4,938.00	8,893	8,947.4	4,947	9.4	0.001	1,020-43,400
Manganese (Mn)	1,930	14.51	74-222	444	800	814.2	450	6.2	0.001	172-3,070
Mercury (Hg)	1.41	0.01	0.0008-17.6	3.0	5	5.4	3	0.0	0.000	0.0004-14
Molybdenum (Mo)	10,700	80.46	0.44-240	143.0	258	338.0	187	43.9	0.004	12-17,000
Nickel (Ni)[12]	1,660	12.48	7.2-370	87	157	169.2	94	6.5	0.001	7-450,000
Phosphorus (P)	19,600	147.39	88.1-620	90.1	162	309.7	171	81.1	0.008	11,900-86,500
Potassium (K)	7,740	58.20	219-828	458.0	825	883.1	488	30.3	0.003	17-1,440
Selenium (Se)[12]	348	2.62	0.18-2.4	1.0	2	4.4	2	1.4	0.000	0.02-710
Silver (Ag)	90.8	0.68	0.005-0.14	1.0	2	2.5	1	0.4	0.000	0.007-80
Sodium (Na)	7,480	56.25	1,400-10,000	5,828	10,496	10,552.5	5,835	6.9	0.001	up to 28,800
Strontium (Sr)	1,210	9.10	28,900-190,000	7	12	21.5	12	5.0	0.001	Detected in tailings, so known to originate with ores or other alternate feeds.
Thallium (Tl)	5,860	44.07	0.7-45	16	29	72.9	40	24.3	0.002	0.02-960
Vanadium (V)	1.6	0.01	136-510	264	475	475.5	263	-1.1	0.000	10-25,000
Zinc (Zn)	751	5.65	50-1,300	637	1,147	1,152.9	637	0.5	0.000	8-14,500

Table 4 Comparison of Uranium Material to Tailings and Alternate Feeds

Notes to Table 2:

1. The concentration in the Uranium Material is based on Section D.1. of the RMPR. Ranges were not provided. Values reported as less than (<) were used as reported.
2. Estimated mass in the Uranium Material is calculated by multiplying column B by an assumed 7,520 dry tons of Uranium Material.

3A & 3B. Mill tailings range and average concentrations were taken from Mill tailings samples to date, as summarized in Table 5 of the draft Statement of Basis ("SOB") for the Utah Groundwater Discharge Permit ("GWDP") for the Mill (November 29, 2004).

A. All constituents in Uranium Material have been analyzed in Mill tailings. Table 5 of SOB and Column C, above, summarize range of measured values. Values reported as less than ("<") were used as whole values.

B. Column D is theoretical average from Cell 3 plus processing of Fansteel alternate feed. Copper, lithium, and strontium were not present in FMRI alternate feed and were not adjusted from GWDP SOB Table 5 in Column D.

C. Phosphate ($PO_4^{=}$) reported in FMRI was adjusted to phosphorus (P) for consistency with SOB Table 5

4. Estimated current mass in Mill tailings Cell 3 is 1,801,000 dry tons.
5. Mass in Mill tailings after Uranium Material processing is calculated by adding columns B and E.
6. The concentration in Mill tailings after Uranium Material processing is calculated by dividing column F by 1,808,520, being the existing volume of tailings in Cell No 3 of 1,801,000 dry tons plus the assumed 7,520 dry tons of Uranium Material.
7. The increase in Mill tailings concentration after Uranium Material processing (ppm) shows the increase (decrease) in concentration of each constituent in the Mill's tailings, stated in ppm of the total mass of tailings in Cell No. 3, which is calculated as the difference between column G and column D.
8. The increase in Mill tailings concentration after Uranium Material processing (%) is the same number as in column H, except stated as the increase or decrease in the percentage of total Mill tailings mass in tailings Cell No. 3.
9. The concentration in other alternate feeds represents some selected concentrations for constituents found in characterization data for other alternate feed materials licensed for processing at the Mill, for comparison purposes.
10. Phosphorus value approximated from reported phosphate values times 0.33. Actual value will be higher if phosphorus is present in forms other than phosphate.
11. Sodium and lithium values are wet basis from Maywood alternate feed. Dry basis value would be higher.

Attachment 6
Cross Index to DRC Interrogatory Template for review of License Amendment Requests and Environmental Reports under UAC R313-24

DRC Interrogatory Number	Topic	Regulatory Basis	Where Addressed in This Document	Where Addressed in Other Documents
UAC R313-24-3-01A/01	Environmental Analysis - Radiological and Nonradiological impacts	UAC R313-24-3	Section 1.0-1.4, 2.3, 2.5, 4.1, Attachment 5	ER Lic. App 3.1-3.10; ER Cell 4B 9.0
	Geology and Soils (Land)	RG 3.8, Section 6.1.4.1	Section 4.1	ER Lic. App. 3.4.1-3.4.4, 3.5; Rec Plan 1.6; ER Cell 4B 6.0
	Exposure Pathways	RG 3.8, Section 5.2.1	Section 4.1	ER Lic. App. 3.13.2.2, Figure 3.13-1; Dames and Moore 5.2; ER Cell 4B 10.1
	Liquid Effluents	RG 3.8, Section 5.2.2	Section 4.1, 4.6, 4.8	Rec. Plan 2.2.3.2; Dames and Moore 5.2
	Airborne Effluents	RG 3.8, Section 5.2.3	Section 4.1, 4.8	GW Permit App. 2.6; Dames and Moore 2.7.4, Dames and Moore 5.2
	Direct Radiation	RG 3.8, Section 5.2.4	Section 2.3, 4.1, 4.9, 4.10	Dames and Moore 2.7.4
	Effects of Sanitary and Other Waste Discharges	RG 3.8, Section 5.4	Section 4.1	Dames and Moore 5.4
	Other Effects	RG 3.8, Section 5.5	Section 4.1, 4.2.2	Dames and Moore 5.5
	Hazard Assessment	NUREG-1620, Section 4.3.3.1	Section 4.1, Attachment 4	GW Permit App. 2.6-2.7
	Exposure Assessment	NUREG-1620, Section 4.3.3.2	Section 4.1	GW Permit App. 2.6-2.7
	Accidents	DG-3024, Section 6	Section 4.1, 4.2.3	ER Lic. App. 4.0
	Mill Accidents Involving Radioactivity	RG 3.8, Section 7.1	Section 4.1, 4.4.1	ER Lic. App. 4.0
	Other Accidents	RG 3.8, Section 7.3	Section 4.1, 4.2.3	ER Lic. App. 4.0
	Summary of Annual Radiation Doses	RG 3.8, Section 5.2.5	Section 4.1	ER Lic. App Tables 3.13-3, 3.13-4
UAC R313-24-3-01B/01	Environmental Analysis - Impact on Waterways and Groundwater	UAC R313-24-3	Section 4.1, 4.6, 4.7	GW Permit App. 2.5-2.7; ER Cell 4B 10.0
	Surface Water	RG 3.8, Section 6.1.1	Section 4.1, 4.7	ER Lic. App. 3.7.1.1-3.7.1.3; Rec Plan 1.4.1-1.4.3, 1.7.5.5
	Physical and Chemical Parameters (Ground Water)	RG 3.8, Section 6.1.2.2	Section 4.1, 4.6, Attachment 4	GWDP Table 2
UAC R313-24-3-01C/01	Environmental Analysis - Alternatives	UAC R313-24-3	Section 4.1, 4.14	ER Lic. App. 2.0-2.4
	Alternatives to the Proposed Action	RG 3.8, Section 10	Section 4.1, 4.14	ER Lic. App 2.1, 2.4
	Benefit - Cost Analysis	RG 3.8, Section 11	Section 4.1, 4.13	ER Lic. App. 5.0; Rec Plan Attachment C
UAC R313-24-3-01D/01	Environmental Analysis - Long-Term Impacts	UAC R313-24-3	Section 4.1, 4.5.3, 4.11	ER Lic. App. 5.0; ER Cell 4B 14.0
	Mill Decommissioning	DG-3024, Section 8.1	Section 4.1, 4.5.3	Rec. Plan 3.2.3,
	Site and Tailings Reclamation	DG-3024, Section 8.2	Section 4.1, 4.5.3	Rec. Plan 3.2.1, 3.2.2.;
	Decommissioning and Reclamation	RG 3.8, Section 9	Section 4.1, 4.5.3	Rec. Plan Attachment A, 3.2.1, 3.2.2

DRC Interrogatory Number	Topic	Regulatory Basis	Where Addressed in This Document	Where Addressed in Other Documents
	Decommissioning Plan for Land and Structures	NUREG-1620, Section 5.2.3	Section 4.1, 4.5.3	Rec. Plan 3.2.1
10CFR40.26(c)(2)-02/01	General License	UAC R313-24-4		Satisfied by ongoing compliance with mill license
10CFR40.31(H)-03/01	Application for Specific Licenses	UAC R313-24-4		Satisfied by ongoing compliance with mill license
	Corporate Organization and Administrative Procedures	DG-3024, Section 5.1	Section 4.1, Section 4.12	Satisfied by ongoing compliance with mill license
	Management Control Program	DG-3024, Section 5.2	Section 4.1, Section 4.12	Satisfied by ongoing compliance with mill license
	Management Audit and Inspection Program	DG-3024, Section 5.3	Section 4.1, Section 4.12	Satisfied by ongoing compliance with mill license
	Qualifications	DG-3024, Section 5.4	Section 4.1, Section 4.12	Satisfied by ongoing compliance with mill license
	Training	DG-3024, Section 5.5	Section 4.1, 4.4, 4.10.2, 4.12	Satisfied by ongoing compliance with mill license
	Security	DG-3024, Section 5.6	Section 4.1, 4.12	Satisfied by ongoing compliance with mill license
	Quality Assurance	DG-3024, Section 7	Section 4.1	Satisfied by ongoing compliance with mill license
	References	DG-3024	Section 4.1	Satisfied by ongoing compliance with mill license
10CFR40.4(c)-04/01	Terms and Conditions of Licenses	UAC R313-24-4	Section 4.1	Satisfied by ongoing compliance with mill license
10CFR40.40.42(K)(3)(I)-05/01	Expiration, Termination, Decommissioning	UAC R313-24-4	Section 4.1	Satisfied by ongoing compliance with mill license
10CFR40.61-06/01	Records	UAC R313-24-4		Satisfied by ongoing compliance with mill license
10CFR40.65(A)(1)-07/01	Effluent Monitoring Reporting Requirements	UAC R313-24-4	Section 4.1	Rec. Plan 1.7.5.4
	Mill Effluent Monitoring (Proposed Operational Monitoring Program	RG 3.8, Section 6.2.1.1	Section 4.1	Rec. Plan 1.7.5.4
	Enviromental Radiological Monitoring (Proposed Operational Monitoring Program)	RG 3.8, Section 6.2.1.2	Section 4.1	Rec Plan 2.3.2.1 9 (c), (d); ER Cell 4B 10.4
	Meteorological Monitoring (Proposed Operational Monitoring Program)	RG 3.8, Section 6.2.3	Section 4.1	Rec. Plan 1.1.1-1.1.3, 2.3.2.1(d), 1.7.5.6; ER Cell 4B 2.2
10CFR40.INTRODUCTION-08/01	Capacity of Tailings or Waste Systems Over the Lifetime of Mill Operations	UAC R313-24-4	Section 4.1, 4.5.2	GW Permit App. 2.15.2.3

DRC Interrogatory Number	Topic	Regulatory Basis	Where Addressed in This Document	Where Addressed in Other Documents
10CFR40APPENDIX A, Introduction-09/01	Alternative Requirements	UAC R313-24-4	Section 4.1	ER Lic. App 2.1-2.4
10CFR40 APPENDIX A, CRITERION 1-10/01	Permanent Isolation Without Ongoing Maintenance	UAC R313-24-4	Section 4.1, 4.5.3	Rec Plan 3.2.3.1
	Slope Stability	NUREG-1620, Section 2.2.3	Section 4.1, 4.5.3	Rec Plan 3.3.6
	Settlement	NUREG-1620, Section 2.3.3	Section 4.1, 4.5.3	Rec Plan 3.3.6
	Liquidifacation Potential	NUREG-1620, Section 2.4.3	Section 4.1, 4.5.3	Rec Plan 3.3.6
10CFR40, APPENDIX A, CRITERION 2-11/01	Proliferation	UAC R313-24-4	Section 4.1	Rec Plan 3.3.6
10CFR40, APPENDIX A, CRITERION 3-12/01	Placement Below Grade	UAC R313-24-4	Section 4.1	GW Permit App. 2.5.1.5
10CFR40, APPENDIX A, CRITERION 4-13/01	Location and Design Requirements	UAC R313-24-4	Section 4.1	Rec. Plan 3.1
	Site Location and Layout	RG 3.8, Section 2.1	Section 4.1	Rec Plan 1.1, Figure 3.2-1; ER Lic. App 3.2
	Site Area	RG 3.8 Section 3.1	Section 4.1	Rec Plan 1.1, Figure 1-2, Figure 3.2-1
	Geography	DG-3024, Section 2.1.1	Section 4.1	Rec Plan 1.1-1.3
	Land Use and Demographic Surveys (Land)	RG 3.8, Section 6.1.4.2	Section 4.1	FES 2.5; ER Cell 4B 3.0
	Uses of Adjacent Lands and Waters	RG 3.8, Section 2.2	Section 4.1	FES 2.5; ER Cell 4B 3.0
	Population Distribution	RG 3.8, Section 2.3	Section 4.1	ER Lic. App. Figure 3.9-1; FES 2.4.1.2; ER Cell 4B 4.0
	Demography	DG-3024, Section 2.1.2	Section 4.1	FES 2.4.1.2, 2.4.1.3, 2.4.2
	Meteorology	RG 3.8, Section 2.8	Section 4.1	Rec Plan 1.1, 1.7.5.6; ER Cell 4B 2.0
		DG-3024, Section 2.2	Section 4.1	Rec Plan 1.1, 1.7.5.6; ER Cell 4B 2.0
		RG 3.8, Section 6.1.3.1	Section 4.1	Rec Plan 1.1, 1.7.5.6; ER Cell 4B 2.0
	Models (Air)	RG 3.8, Section 6.1.3.2	Section 4.1	ER Lic App. 3.3.2
	Geology and Soils	RG 3.8, Section 2.5	Section 4.1	Rec Plan 1.6
		DG-3204, Section 2.4.1	Section 4.1	Rec Plan 1.6
	Seismology	RG 3.8, Section 2.6	Section 4.1	Rec Plan 1.6.2.4, 1.6.2.5
		DG-3024, Section 2.4.2	Section 4.1	Rec Plan 1.6.3, 1.6.3.1, 1.6.3.2
	Hydrological Description of Site	NUREG-1620, Section 3.1.3	Section 4.1	Rec Plan 1.5.1.2, 1.5.1.3, Figure 1.5-1, 1.5-3; ER Cell 4B Appendix A
	Surface Water (Hydrology)	RG 3.8, Section 2.7.2	Section 4.1	GWDP I.F.10

DRC Interrogatory Number	Topic	Regulatory Basis	Where Addressed in This Document	Where Addressed in Other Documents
		DG-3024, Section 2.3.2	Section 4.1	GWDP I.F.10
	Flooding Determinations	NUREG-1620, Section 3.2.3	Section 4.1	GW Permit App. 2.13
	Surface Water Profiles, Channel Velocities, and Shear Stresses	NUREG-1620, Section 3.3.3	Section 4.1	GW Permit App. 2.4
	Ground Water (Hydrology)	RG 3.8 Section 2.7.1	Section 4.1	Rec Plan 1.5.1.2, 1.5.1.3, Figure 1.5-1, 1.5-3
		DG-3024, Section 2.3.1	Section 4.1	Rec Plan 1.5.1.2, 1.5.1.3, Figure 1.5-1, 1.5-3
	Radiological Surveys	RG 3.8, Section 6.1	Section 4.1	ER Cell 4B 10.3-10.4
	Site and Uranium Mill Tailings Characteristics	NUREG-1620, Section 2.1.3	Section 4.1, 4.5.1, Attachment 5	Rec. Plan 2.2
	Disposal Cell Cover Engineering Design	NUREG-1620, Section 2.5.3	Section 4.5.3	GW Permit App. 2.7.2.4; Rec Plan 3.2.2.1
	Design of Erosion Protection Covers	NUREG-1620, Section 3.5.3	Section 4.5.3	GW Permit App. 2.7.2.4; Rec Plan 3.2.2.1, 3.3.5
10CFR40, APPENDIX A, CRITERION 5A(1)-14/01	Groundwater Protection Standards	UAC R313-24-4, NUREG-1620 section 4.2.3	Section 4.1, 4.6	GWDP I.A Table 1, I.B, I.C Table 2, I.E
CRITERION 5A(2)-15/01	Liner	UAC R313-24-4	Section 4.1, 4.6	GWDP I.D.2, I.E.8 (c), I.E.7(f)
10CFR40, APPENDIX A, CRITERION 5A(3)-16/01	Exemption from Groundwater Protection Standards	UAC R313-24-4	Section 4.6	Rec. Plan 2.3.1.1 (a)
10CFR, APPENDIX A, CRITERION 5A(4)-17/01	Prevent Overtopping	UAC R313-24-4	Section 4.1	Rec Plan 2.2.3.1, 2.2.3.2
10CFR APPENDIX A, CRITERION 5A(5)-18/01	Dikes	UAC R313-24-4	Section 4.1	Rec Plan 2.2.3.1, 2.2.3.2
10CFR APPENDIX A, CRITERION 6(1)-19/01	Cover and Closure at End of Milling Operations	UAC R313-24-4	Section 4.1, 4.5.3	GW Permit App. 2.19
	Radon Attenuation	NUREG -1620, Section 5.1.3.1	Section 4.1, 4.5.3	GW Permit App. 2.19; Rec Plan 3.3.2
	Gamma Attenuation	NUREG-1620, Section 5.1.3.2	Section 4.1, 4.5.3	GW Permit App. 2.19; Rec Plan 3.3.2
	Cover Radioactivity Content	NUREG-1620, Section 5.1.3.3	Section 4.1, 4.5.3	GW Permit App. 2.19; Rec Plan 3.3.6, 3.3.8; ER Cell 4B Figure 13
10CFR40, APPENDIX A, CRITERION 6(2)-20/01	Verify Effectiveness of Final Radon Barrier	UAC R313-24-4	Section 4.1, 4.5.3	Rec Plan. 3.2, 3.2.3.1; GW Permit App. 2.19.4
10CFR40, APPENDIX A, CRITERION 6(3)-21/01	Phased Emplacement of Final Radon Barrier	UAC R313-24-4	Section 4.5.3	Rec Plan. 3.2, 3.2.3.1; ER Cell 4B Table 5

DRC Interrogatory Number	Topic	Regulatory Basis	Where Addressed in This Document	Where Addressed in Other Documents
10CFR40, APPENDIX A, CRITERION 6(5)-23/01	Elevated Raduim Concentrations in cover Materials	UAC R313-24-4	Section 4.5.3	GW Permit App. 2.19; Rec Plan 3.3.6, 3.3.8
	Cover Radioactivity Content	NUREG-1620, Section 5.1.3.3	Section 4.1, 4.5.3	GW Permit App. 2.19; Rec Plan 3.3.6, 3.3.8; ER Cell 4B Figure 13
10CFR40, APPENDIX A, CRITERION 6(6)-24/01	Concentrations of Radionuclides other than Radium in Soil	UAC R313-24-4	Section 4.5.3	GW Permit App. 2.19; Rec Plan 3.3.5
	Background Radiological Characteristics	RG 3.8, Section 2.1	Section 4.1	Lic. App. 3.13.1; ER Cell 4B 9.0
10CFR40, APPENDIX A, CRITERION 6(7)-25/01	Nonradiological Hazards	UAC R313-24-4	Attachment 5	Dames and Moore 3.3.1; ER Cell 4B 9.0
	Regional Nonradiological Characteristics	RG 3.8, Section 2.11	Section 4.1	Dames and Moore 3.3.1; ER Cell 4B 9.0
	Concentrations of Nonradiocative Wastes	RG 3.8, Section 5.3	Section 4.5.1, Attachment 5	Dames and Moore 3.3.1; ER Cell 4B 9.0
10CFR40, APPENDIX A, CRITERION 6A(1)-26/01	Completion of Final Radon Barrier	UAC R313-24-4	Section 4.5.3	Rec Plan. 3.2, 3.2.3.1; GW Permit App. 2.19.4
10CFR40, APPENDIX A, CRITERION 6A(2)-27/01	Extending Time for Milestones Performance	UAC R313-24-4	Section 4.5.3	Rec Plan. 3.2, 3.2.3.1; GW Permit App. 2.19.4
10CFR40, APPENDIX A, CRITERION 6A(3)-28/01	Accepting Uranium Byproduct Material from Other Sources During Closure	UAC R313-24-4	Section 4.5.3	License Condition 9.11
10CFR40, APPENDIX A, CRITERION 7-29/01	Preoperational and Operational Monitoring Programs	UAC R313-24-4	Section 4.1	Rec Plan 2.3.2
10CFR40, APPENDIX A, CRITERION 8-30/01	Effluent Control During Operations	UAC R313-24-4	Section 4.1	GW Permit App. 2.15
	Gaseous and Airbourne Particulate Materials	DG-3024, Section 4.1	Section 4.1	GW Permit App. 2.15
	Liquids and Solids	DG-3024, Section 4.2	Section 4.1	GW Permit App. 2.15
	Contaminated Equipment	DG-3024, Section 4.3	Section 4.1	GW Permit App. 2.15
	Sources of Mill Wastes and Effluents	RG 3.8, Section 3.4	Section 4.4	GW Permit App. 2.15; Dames and Moore 3.3
	Control of Mill Wastes and Effluents	RG 3.8, Section 3.5	Section 4.4	GW Permit App. 2.15; Dames and Moore 3.4
	Sanitary and Other Mill Waste Systems	RG 3.8 Section 3.6	Section 4.1	GW Permit App. 2.15; Dames and Moore 3.5
	Effluents in the Environment	RG 3.8, Section 5.1.2	Section 4.1	GW Permit App. 2.15; Dames and Moore 3.3
	Effluent Control Techniques	DG-3024, Section 5.7.1	Section 4.1	GW Permit App. 2.15; Dames and Moore 3.3
	External Radiation Exposure Monitoring Program	DG-3024, Section 5.7.2	Section 4.1	GW Permit App. 2.15
	Airborne Radiation Monitoring Program	DG-3024, Section 5.7.3	Section 4.1	GW Permit App. 2.15; ER Lic. App 3.3.2
	Exposure Calculations	DG-3024, Section 5.7.4	Section 4.1	Rec. Plan Attachment F

DRC Interrogatory Number	Topic	Regulatory Basis	Where Addressed in This Document	Where Addressed in Other Documents
	Bioassay Program	DG-3024, Section 5.7.5	Section 4.1	Rec Plan 3.2
	Contamination Control Program	DG-3024, Section 5.7.6	Section 4.1	Rec Plan 3.2
	Airborne Effluent and Environmental Monitoring Programs	DG-3024, Section 5.7.7	Section 4.1	GW Permit App. 2.9; Rec Plan 2.3; Dames and Moore 3.3; ER Cell 4B Appendix C
	Groundwater and Surface Water Monitoring Programs	DG-3024, Section 5.7.8	Section 4.1	GWDP I.E, I.F; Rec Plan 2.3.1.1; ER Cell 4B 10.2
	Control of Windblown Tailings and Ore	DG-3024, Section 5.7.9	Section 4.1	Rec Plan 3.2.3.1
10CFR40, APPENDIX A, CRITERION 8A-31/01	Daily Inspections	UAC R313-24-4	Section 4.1	Rec Plan 2.3.2.2(a)
10CFR40, APPENDIX A, CRITERION 9-32/01	Financial Surety Arrangements	UAC R313-24-4	Section 4.5.3	Surety 2010
	Financial Assurance	DG-3024, Section 8.3	Section 4.5.3	Surety 2010
	Maintaining Financial Surety	NUREG-1620, Section 4.4.3(10)	Section 4.5.3	Surety 2010
10CFR40, APPENDIX A, CRITERION 10-33/01	Costs of Long-Term Surveillance	UAC R313-24-4	Section 4.5.3	Surety 2010
UAC R317-6-6.1-34/01	Duty to Apply for a Groundwater Discharge Permit	UAC R313-24-4	Section 4.1, 4.6	GWDP IV.D
UAC R317-6-6.3-35/01	Groundwater Discharge Permit Application	UAC R313-24-4	Section 4.1, 4.6	GWDP IV
UAC R317-6.6.4-36/01	Issuance of Discharge Permit	UAC R313-24-4	Section 4.1, 4.6	GWDP IV
UAC R317-6-6.9-37/01	Permit Compliance Monitoring	UAC R313-24-4	Section 4.1, 4.6	GWDP III
	Examination of Compliance and Monitoring Program	NUREG -1620, Section 4.3.3.4	Section 4.1, 4.6	GWDP I.F.1
UAC R317-6-6.10-38/01	Background Water Quality Determination	UAC R313-24-4	Section 4.1, 4.6	GWDP I.B; ER Lic App. 3.7.3.2 (c)
UAC R317-6-6.10-39/01	Commencement and Discontinuance of Groundwater Discharge Operations	UAC R313-24-4	Section 4.6	GW Permit App. 2.19
UAC R317-6-6.12-40/01	Submission of Data	UAC R313-24-4	Section 4.6	GWDP I.F.1
UAC R317-6-6.13-41/01	Reporting of Mechanical Problems or Discharge System Failures	UAC R313-24-4	Section 4.6	GWDP I.G; GW Permit App 2.15
UAC R317-6-6.10-42/01	Correction of Adverse Effects	UAC R313-24-4	Section 4.6	GWDP I.G
	Corrective Action Assessment	NUREG-1620, Section 4.3.3.3	Section 4.6	GWDP I.G
UAC R317-6-6.10-43/01	Out-of-Compliance Status	UAC R313-24-4	Section 4.6	GWDP I.G
UAC R317-6-6.10-44/01	Procedure When a Facility is Out-of-Compliance	UAC R313-24-4	Section 4.6	GWDP I.H

DRC Interrogatory Number	Topic	Regulatory Basis	Where Addressed in This Document	Where Addressed in Other Documents
UAC R317-6-6.10-45/01	Groundwater Discharge Permit Transfer	UAC R313-24-4	Section 4.6	GWDP IV.L

Notes:

If not stated otherwise, section number refers to section in the license amendment application, not its attachments.

References:

GWDP - "*Ground Water Discharge Permit UGW370004*". July 14, 2011

ER Cell 4B - "*Environmental Report in Support of Construction Tailings Cell 4B*". Revised and Resubmitted September 11, 2009

GW Permit App. - "*Permit Renewable Application. State of Utah Ground Water Discharge Permit NO. UGW370004*". September 1, 2009

Rec. Plan - "*Reclamation Plan White Mesa Mill Blanding, Utah. Radioactive Material License NO. UT1900479 Revision 4.0*". November 2009

ER Lic. App. - "*White Mesa Uranium Mill License Renewal Application. State of Utah Radioactive Materials License No. UT1900479*". *Volume 4 of 5 (Environmental Report).* February 28, 2007

Dames and Moore - "*Environmental Report. White Mesa Uranium Project. San Juan County, Utah for Energy Fuels Nuclear, Inc*". Prepared by Dames and Moore. January 30, 1978

FES - "*Final Environmental Statement related to operation of White Mesa Uranium Project. Energy Fuels Nuclear, Inc*". May 1979.

Surety 2010 - *"Revised Cost Estimates for Reclamation of the White Mesa Mill and Tailings Management System"*. November 23 2010.

License Condition - "*Utah Department of Environmental Quality Division of Radiation Control Radioactive Material License*". License #UT1900479. June 2010