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September 12, 2008

Mr. Greg Weigel
Federal On-Scene Coordinator
United States Environmental Protection Agency
Idaho Operations Office
1435 North Orchard Street
Boise, ID 83706

Subject: **Final Removal Action Report**
Salmon River Uranium Development Site
EPA Contract No. EP-S7-06-03
Technical Direction Document (TDD) No. 07-08-0006
Document No. TO-001-07-08-0006-DCN212

Dear Mr. Weigel:

TechLaw, Inc., (TechLaw) Superfund Technical Assessment and Response Team - 3 (START-3) is submitting one digital copy of the Final Removal Action (RA) Report for the Salmon River Uranium Development site located near North Fork, in Lemhi County, Idaho. This RA Report describes the sampling and removal activities completed at the Salmon River Uranium Development site during October/November 2007 and May/June 2008.

Please contact me at (770) 331-8761 if you have any questions or comments regarding this report.

Sincerely,

for: WRD

William R. (Ray) Doyle
START-3 Program Manager

Enclosure

cc: Sharon Nickels, EPA Project Officer
Bryan McKinnon, TechLaw, Inc. START-3 Removal Coordinator/Project Manager
Ashley Vernon, TechLaw, Inc. START-3 R10 Central Files Administrator

Final Removal Action Report
Salmon River Uranium Development Site
North Fork, Lemhi County, Idaho
TDD: 07-08-0006

Submitted By:

TechLaw, Inc.
7411 Beach Drive East
Port Orchard, Washington
Contract EP-S07-06-03

Region 10

START-3

Superfund Technical Assessment and Response Team

Submitted To:
Greg Weigel
On-Scene Coordinator
United States Environmental Protection Agency, Region 10
Idaho Operations Office
1435 North Orchard Street
Boise, Idaho 83706

August 2008

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LIST OF ATTACHMENTS

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ACRONYMS LIST

%	percent
§§	sections
°F	Degrees Fahrenheit
ADT	ADT Environmental Solutions LLC
AEA	Atomic Energy Act
AEC	United States Atomic Energy Commission
AST	above ground storage tank
C.F.R.	Code of Federal Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
decon	decontaminated
DOT	United States Department of Transportation
EPA	United States Environmental Protection Agency
EQM	Environmental Quality Management, Inc.
ERRS	Emergency Rapid Response Services
ESSAP	Environmental Survey and Site Assessment Program
FPXRF	Field Portable X-ray Fluorescence Instrument
ft	feet
ft^2	square feet
ft^3	cubic feet
gal	gallon
HASP	Health and Safety Plan
HES	Homestead Entry Survey
HHMSSL	EPA Region 6 Human Health Medium Specific Screening Levels
IDEQ	Idaho Department of Environmental Quality
in	inches
Innov-X	Innov-X Systems, Inc.
km	kilometers
km^2	square kilometers
m	meters
MARSIM	Multi-agency radiation survey and site investigation manual
mg/Kg	milligrams per kilogram
mg/m^3	milligrams per cubic meter
mi	miles
mi^3	cubic miles
mrem	milli-roentgen equivalent in man or one thousandth of a rem
NAREL	U.S. EPA National Air and Radiation Environmental Laboratory
NARM	Naturally-Occurring and Accelerator-Produced Radioactive Materials
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List

NRC	Nuclear Regulatory Commission
OSC	Federal On-Scene Coordinator
PPE	Personal Protective Equipment
ppm	parts-per-million
PRP	Potentially Responsible Party
RA	Removal Action
RCRA	Resource Conservation and Recovery Act
Site	Salmon River Uranium Development Site
SOP	standard operating procedure
SRUD	Salmon River Uranium Development, Inc.
SSID	Superfund Site Identification Number
START-3	Superfund Technical Assessment and Response Team
TAT	turn-around-time
TCLP	Toxic Characteristic Leaching Procedure
TDD	Technical Direction Document
TO	Task Order
U.S.C.	United States Code
UN	United Nations
USFS	U.S. Forest Service
UST	underground storage tank
VOCs	volatile organic compounds
WA	Washington
yds^3	cubic yards

EXECUTIVE SUMMARY

SITE: Salmon River Uranium Development Site

LOCATION: Near Forth Fork, Lemhi County, Idaho

PROJECT DATES: Phase I – 23 October 2007 through 2 November 2007, and
Phase II – 27 May 2008 through 4 June 2008.

INCIDENT DESCRIPTION: The Salmon River Uranium Development Site (Site), located approximately five miles west of the community of North Fork, Lemhi County, Idaho (latitude 45° 22'46" North, longitude 14° 04'58" West)**,** is an inactive former thorium and uranium processing facility. Hazards present on Site included elevated levels of heavy metals including arsenic, copper, and lead and residual radioactivity from processed and unprocessed ore material**.** On 23 October 2007, the United States Environmental Protection Agency (EPA) initiated a removal action at the Salmon River Uranium Development Site to mitigate threats posed to public health and the environment.

The Site is not on the National Priorities List (NPL).

ACTIONS: On 16 March 2006, the EPA tasked the Superfund Technical Assessment and Response Team (START-3) with performing a site assessment at the former Salmon River Uranium Development facility. In June of 2006, START-3 confirmed the presence of elevated levels of arsenic, lead, and radioactivity within former processing buildings and the surrounding areas on Site. These findings, in addition to the proximity of the Site to recreationally used areas and the Salmon River, constituted a threat to public health and the environment and led to EPA's initiation of a time-critical removal action (RA).

Removal actions occurred during the course of two phases:

Phase I – 23 October 2007 through 02 November 2007, and
Phase II – 27 May 2008 through 04 June 2008.

During Phase I hazardous wastes that were not radioactive were removed for disposal at a Subtitle C waste disposal facility. Radioactive wastes, including unprocessed thorium ore, processed thorium and uranium source material, soils contaminated with source material, and mixed waste (high metals concentration and high radioactivity) were excavated, stockpiled and secured on Site pending waste determination and identification of appropriate disposal options.

During Phase II all stockpiled radioactive wastes were shipped for disposal.

1.0 INTRODUCTION

The United States Environmental Protection Agency (EPA) completed a time-critical removal action (RA) at the Salmon River Uranium Development Site (Site) located near North Fork, Lemhi County, Idaho. The RA was performed to mitigate the release of hazardous substances as defined by sections (§§) 101(14) and 101(33) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 United States Code (U.S.C.) §§ 9601(14) and (33). This RA involved the removal and appropriate disposal of on-site hazardous chemicals and radiological contaminants having the potential to pose an imminent and substantial endangerment to public health or welfare, or the environment.

The Site, which is not listed on the National Priorities List (NPL), is identified as IDN001002662 within the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) with a designated Superfund Site Identification Number (SSID) of 10DX.

This final RA report is organized into the following sections: Introduction (Section 1); Site Description and Background (Section 2); Removal Action Description (Section 3) Project Organization, Resources Committed, and Schedule (Section 4); Removal Activities (Section 5); Post Removal Site Controls (Section 6); Waste Management, Transportation, and Disposal (Section 7); Sampling and Monitoring Activities (Section 8); Quality Assurance / Quality Control (Section 9); Community Relations (Section 10); Health and Safety (Section 11); Difficulties Encountered / Recommendations (Section 12); Summary (Section 13); and References (Section 14). Selected photographic documentation, analytical results, and a waste disposal summary are included within the Attachments.

2.0 SITE DESCRIPTION AND BACKGROUND

2.1 Site Description

2.1.1 Site Location

The Site is located northerly adjacent to U.S. Forest Service (USFS) Road 030, approximately five miles west of the community of North Fork and State Highway 93 in Lemhi County, Idaho (Figure 2-1). The Site exists within the westerly half of Homestead Entry Survey (HES) No. 364 in Section 26, Township 24 North, Range 20 East, on the north side of the Salmon River (Lemhi County, 2008). The precise location for the Site is Latitude 45° 22'46" North, Longitude 14° 04'58" West.

2.1.2 Site Layout

The Site consists of approximately 21 acres of private property located within the Salmon-Challis National Forest in east-central Idaho. The Site is bounded by the Salmon-Challis National Forest to the north, east, and west; and to the south by the Salmon River. USFS Road 030 transects the southern portion of the Site (Lemhi County, 2008).

The Site includes a former ore processing building (Building 1) built in 1958, concrete pads of two former out-buildings (Buildings 2 and 3), and two former tailings impoundments (Figure 2-2 and 2-3). The Site is accessed via a private, gated and locked access road intersecting with USFS 030. Building 1 is approximately 2,500 square feet (ft^2) in size with a poured concrete floor, an equipment trench, and numerous, interspersed, concrete pedestals. This building contains a large hopper and other ore processing equipment. Building 1 is exposed, as much of the exterior siding was removed. Two concrete pads adjacent to the west and east of Building 1 are remnants of former Buildings 2 and 3, respectively. Debris and various waste piles, including piles of processed and unprocessed thorium and uranium ore, existed within Building 1 and the surrounding exterior. In addition, the Site contained two, 6,800-gallon (gal) compartmentalized box tanks, a dilapidated camper trailer, and a former ore-inlet chute that intersects with the northwest corner of Building 1 from near a northerly, up gradient, former mine adit (TechLaw, 2007).

Down gradient to the east of the former processing buildings are two former tailings impoundments. Earthen embankments created for the tailings impoundments and the construction of USFS Road 030 inhibit the natural surface water pathway from the Site to the Salmon River.

2.1.3 Topography and Climate

The Site is located within the Salmon-Challis National Forest in east-central Idaho, west of the Continental Divide, at an elevation of approximately 4,000-feet above mean sea level. The regional physical features include a short growing season, geologic conditions which create unstable soils, and a rough

topography (GORP, 2008). The main barrier to the north is the rugged chain of Bitterroot Mountains. In the northern vicinity of the Site are mines known as the "Sunnyside Claims." These mines were potentially the raw source material for most of the processing activities at the Site (TechLaw, 2007). The main barrier to the south is the Salmon River. The Salmon River flows for 425-miles (mi) (or 684 kilometers (km)) through central Idaho, draining 14,000-square miles (mi^2) (or 36,260-square kilometers (km^2)) and dropping more than 7,000-feet (ft) (or 2,134-meters (m)) between its headwaters above the Sawtooth Valley and its confluence with the Snake River. The Salmon River discharges 11,060-cubic feet (ft^3) (or 313-cubic miles (mi^3)) of water per second making it the second largest tributary of the Snake River behind the Clearwater River (Wikipedia, 2008). A climate check station established in Shoup, Idaho, located 12.8-mi west of Site along USFS Road 030, recorded an average maximum temperature of 60.6 degrees Fahrenheit (°F); an average minimum temperature of 33.6 °F; an average total precipitation of 14.27 inches (in); and an average total snowfall of 33.5 inches. The period of record for the Shoup, Idaho station was from 01 January 1966 to 30 June 2007 (WRCC, 2008).

2.2 Site Background

2.2.1 Site History

In March of 1958, Salmon River Uranium Development, Inc. (SRUD) purchased the Site property. By letter dated 06 October 1958, SRUD applied for a U.S. Atomic Energy Commission (AEC) license to chemically process source material from the Sunnyside Claims at North Fork, Idaho. During the period of October 1958 to October 1959, SRUD operated under two licenses issued by the AEC. The first license entitled SRUD to transfer, deliver, possess, and have title to raw source material from the Sunnyside Claims at North Fork, Idaho. The second license authorized SRUD to process raw source material from the Agency Creek Thorium Corporation of Salmon, Idaho. These activities occurred at the SRUD facility in accordance with the two licenses. The licenses expired in 1959 and SRUD activities on the Site ceased. According to Site records, the Minerals Refining Company owned the mill in 1962 (TechLaw, 2007). During the 1970s and 1980s, unlicensed processing likely took place at the Site and in approximately 1998, Mr. Orval Baird reportedly conducted processing of several batches of thorium ore (EPA, 2007).

2.2.2 Site Ownership

The earliest record of ownership for the Site property dates back to 1958 with the owner listed as SRUD. The Site records indicate the Site mill was owned by Minerals Refining Company in June of 1962. The Site property was owned by James V. Joyce from 1969 until 1978, when it was sold to the National Nuclear Reserves Corporation, of which Mr. Joyce was president. In 1992, the property was sold to Antonia Baird, and later transferred to Antonia and

Orval Baird. Mr. Baird previously worked for the Joyce Corporation. The Bairds are the current property owners (TechLaw, 2007).

2.3 Previous Investigations

In June 1962, the AEC (predecessor to the Nuclear Regulatory Commission (NRC)) conducted an on-site visit at the Site facility. Documented observations made by the AEC inspector included an access road to the ore pad overgrown with weeds; no visible stockpiled ore; and a dry tailings pond. The inspector also noted that the Minerals Refining Company owned the mill (TechLaw, 2007).

On 14 August 1996, representatives from the Idaho Department of Environmental Quality (IDEQ) were accompanied by Antonia Baird during their investigation of the Site. Inside Building 1, IDEQ discovered six, 5-gallon plastic containers containing a cloudy liquid identified by Ms. Baird as concentrated thorium. The IDEQ investigation also noted additional 5-gallon containers and chemicals including sulfuric acid, liquid petroleum-based material, soda ash, phosphorous pentasulfide, and various paints, cleaners, and lubricants. The phosphorous pentasulfide was labeled Monsanto Corporation. Monsanto was contacted and on 12 September 1996 they removed the material as a product (TechLaw, 2007).

On 22 May 2001, staff from the NRC Region VI Office visited the Site property and identified thorium contamination in the form of partially processed ore. Laboratory results confirmed that the material on Site was source material (greater than 0.05 percent (%) weight thorium). No sulfuric acid or 5-gallon containers of liquid processed thorium were observed during this inspection.

On 6 October 2003, the NRC Environmental Survey and Site Assessment Program (ESSAP) conducted a radiological scoping survey of the Site that included screening buildings, soil surfaces, direct and removable surface activity measurements, exposure rate measurements, and surface soil sampling and analysis. Residues with thorium and uranium contamination were noted at numerous locations including fixed radiological contamination in Building 1; loose contaminated soil within Building 1 and remnants of Buildings 2 and 3; and contaminated soils surrounding the on-site structures associated with processed source material, byproduct material, and natural ores. Localized areas of elevated thorium activity were also identified in the former tailings impoundments (EPA, 2007; TechLaw, 2007).

In June 2006, the EPA performed a removal assessment at the Site. During which, the on-site presence of heavy metals and radionuclides were identified at elevated concentrations and thereby considered hazardous substances as defined by sections 101(14) and 101(33) of CERCLA, as amended, 42 U.S.C. §§9601(14) and (33). On-site waste piles within Building 1 and the surrounding exterior contained elevated concentrations of hazardous substances including arsenic, copper, lead, and elevated residual radioactivity, which had been released and presented a threat of further release to the environment. Additionally, material

from two, 6,800-gallon compartmentalized box tanks previously leaked onto the ground. The content of the tanks was unknown, but was reported to include spent sulfuric acid. (TechLaw, 2007).

During the spring of 2007, IDEQ worked with Mr. and Mrs. Baird to remove an un-registered, 3,000-gal underground storage tank (UST) used to store diesel. Soil samples collected following the UST removal confirmed that diesel contamination was not present in the surrounding soils (EPA, 2007).

3.0 REMOVAL ACTION DESCRIPTION

Due to the presence of uncontrolled hazardous substances at the Site; the Site's proximity to recreational use land, including the Salmon-Challis National Forest and the Salmon River; and the lack of available technical and financial resources available to the state or local authorities, or property owner, to mitigate these threats, the EPA drafted an Action Memorandum to request, and document approval of, a time-critical removal action (Attachment A). This request was based on fulfilling the conditions set forth under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) at 40 CFR 300.415(b)(2)(i), (iv), and (vii). The conditions applicable to the Site included substantial threats to human health and the environment and the potential for off-site migration of contaminants.

The scope of this RA included the excavation, removal, and appropriate disposal of contaminated soils, waste, and ore piles containing elevated concentrations of heavy metals or residual radioactivity above site specific cleanup goals established for this RA. The cleanup goal for heavy metals contamination used the EPA Region 6 Human Health Medium Specific Levels (HHMSSL) for industrial outdoor workers. The cleanup goal for radionuclide contamination used a recreational-use scenario for gamma radiation exposure. The HHMSSL for lead and arsenic (non-cancer endpoint) in soil are 800 ppm and 280 ppm, respectively. The site-specific cleanup goal for radionuclide contaminated soils was 200 uR/hour. In addition, the RA characterized the contents of the two, 6,800-gal compartmentalized box tanks and removed the hazardous contents, spilled hazardous material, and contaminated soils for appropriate disposal.

3.1 Location of Hazardous Substances

A site assessment was completed in 2006 by the EPA with assistance from the Superfund Technical Assessment and Response Team-3 (START-3) contractor, TechLaw, Incorporated. The site assessment documented areas of localized contamination inside and surrounding Building 1 and within the former tailings impoundment. The site assessment specifically identified the following contaminated materials, estimated volumes, and locations:

- Spent processed ore stockpile inside Building 1: approximately 14 cubic yards (yds^3), with arsenic concentrations as high as 116,000 milligrams per kilogram (mg/Kg);
- Sandy material inside Building 1: approximately 2 yds^3, with lead concentrations as high as 48,600 mg/Kg;
- Numerous small containers inside Building 1 containing potentially hazardous, unknown materials;
- Potentially processed thorium ore stockpile located near the former Building 3 foundation (east of Building 1): approximately 10 yds^3, with elevated gamma radioactivity;
- Potentially processed uranium stockpile located northerly adjacent to Building 1: approximately two yds^3, with elevated radioactivity;

- Waste piles and soils along the northwest side of Building 1: approximately 15 yds^3, with elevated radioactivity and arsenic concentrations;
- Thorium waste pile west of Building 1: approximately 15 yds^3, with elevated radioactivity;
- Thorium ore piles west of Building 1: approximately 50 yds^3, with elevated radioactivity;
- Sandy area comprising the former upper tailings pond located easterly and down gradient of Building 1: approximately 25-feet by 100-feet in area, with an elevated arsenic concentration; and
- Two compartmentalized box tanks: each with a 6,800-gallon capacity, with potentially hazardous contents and surrounding soils with visually apparent evidence of spillage.

The stockpiles, waste, and contaminated materials were addressed during the removal on the basis of visual observation, field screening using an Innov-X Systems (Innov-X) field portable x-ray fluorescence instrument (FPXRF) and field screening using a Ludlem Model 192 gamma survey meter.

3.2 Cause of Release or Discharge

The former SRUD facility was used for processing thorium and uranium ore. No specific release or spill incident was reported during its operation.

3.3 Efforts to Obtain Response by Responsible Parties

The EPA conducted a preliminary potentially responsible party (PRP) search for the Site. Further details may be found within an attachment to the Action Memorandum (Attachment A).

4.0 PROJECT ORGANIZATION, RESOURCES COMMITTED, AND SCHEDULE

4.1 Organization of the Response

On 23 October 2007, the EPA, accompanied by START-3 and the Emergency Rapid Response Services contractor (ERRS), initiated a response in accordance with the Action Memorandum (Attachment A) for the Site. Table 1 below summarizes the role of each organization in the response.

Table 1
Organization of the Response
Salmon River Uranium Development Site
North Fork, Lemhi County, Idaho

Agency or Party Involved	Contact	Role
U.S. EPA Region 10 Emergency Response Branch Idaho Operations Office 1435 N. Orchard Street Boise, Idaho 83706 (208) 378-5773	Greg Weigel Federal On-Scene Coordinator (OSC)	Federal OSC responsible for the overall oversight and success of the project.
US Nuclear Regulatory Commission U.S. NRC Region IV Texas Health Resources Tower 612 E. Lamar Blvd., Suite 400 Arlington, TX 76011-4125817-860-8234 (817) 860-8234	Robert Evans Project Manager (Region IV)	NRC assisted in identifying soil contamination above the cleanup goal (200 µR/hr), conducted MARSIM survey of the cleaned-up site and provided health physics support for on-site personnel.
Environmental Quality Management (EQM) (**ERRS Contractor**) 6825 216th Street SW, Suite J Seattle, Washington 98036 (425) 673-2900	Bryan Chernick (the Phoinix Corporation, representing EQM) Senior Response Manager	ERRS Senior Response Manager responsible for direction of ERRS labor and equipment necessary for the removal; coordination of treatment media for on-site fixation of heavy metal contaminants in soil material; coordination of the transfer and appropriate disposal of contaminated waste.
Techlaw, Inc. (**START-3 Contractor**) 7411 Beach Drive East Port Orchard, Washington 98366 (360) 871-8751	Franki Jewell START-3 Site Lead (Phase I) Bryan McKinnon START-3 Site Lead (Phase II), Project Manager	START-3 Site Lead and Project Manager during removal action responsible for providing EPA with technical assistance, administrative support, air particulate monitoring, screening and sampling, site documentation, site safety support, and report preparation.

4.2 Resources Committed

Resources for this RA were provided by the EPA under ERRS (Contract Number EP-R7-07-02) Task Order (TO) number 0014 and START-3 (Contract Number EP-S7-06-03) Technical Direction Document (TDD) 07-08-0006. This RA occurred in two Phases.

ERRS Phase I removal activities commenced on 23 October 2007 and continued through the transportation and disposal of excavated and removed material on 02 November 2007. ERRS Phase II removal activities commenced on 27 May 2008 through the transportation and disposal of excavated materials, and restoration of the excavated areas which were completed on 04 June 2008. START-3 removal activities were concurrent with ERRS for Phases I and II of this RA.

All on-site removal activities were completed on 04 June 2008. An estimation of the total removal cost is summarized in Table 2. Any indication of specific costs incurred at the Site is only an approximation, subject to audit and finalization by the EPA. The RA report is not meant to be a final reconciliation of the costs associated with a particular site.

Table 2
Removal Action Estimated Total Cost Summary
Salmon River Uranium Development Site
North Fork, Lemhi County, Idaho

Extramural Costs	
Total Cleanup Contractor Costs – EQM[(1)]	$259,747.89
Total START-3 Contractor Costs – TechLaw[(2)]	$46,751.66
EXTRAMURAL SUBTOTAL	$306,499.55

Key:
EQM – Environmental Quality Management
(1) Source – U.S. EPA Hazardous Substances Response Fund Contractor Cost/Receiving Report (1900-55), as per ERRS Response Manager, 5 August 2008.
(2) Source – TechLaw START-3 cost documentation, as of 1 August 2008.

5.0 REMOVAL ACTIVITIES

Removal actions occurred during the course of two phases:

Phase I – 23 October 2007 through 02 November 2007, and
Phase II – 27 May 2008 through 04 June 2008.

This section describes the scope of work focused on during Phase I and Phase II of the RA including participating agencies and groups, their roles, the cleanup objectives for the RA, and the tasks performed to achieve the cleanup objectives.

5.1 Threat Abatement Actions Taken

5.1.1 Phase I: 23 October 2007 through 2 November 2007

Phase I of this RA began on 23 October 2007 with the mobilization of personnel from the EPA, ERRS, START-3, and the NRC to Salmon, Idaho, in preparation for removal activities to be conducted at the Site. ERRS facilitated the mobilization of heavy equipment to Site. The scope of work initially focused on general site preparation for the RA, including minor improvements made to the Site access road that connects with USFS Road 030. In addition, the NRC personnel prepared for its radiation survey of Site.

On 24 October 2007, ERRS established a command post that consisted of two office trailers powered by a generator and equipped with an ERRS satellite dish that enabled on-site personnel offsite communication capabilities. The NRC and START-3 concurrently conducted an initial screening of the Site using a Ludlum gamma survey meter and located the contaminated areas of the Site property identified during the 2006 site assessment. In addition, START-3 began daily particulate monitoring using a Thermo Instruments DataRAM^{TM} instrument. Results were routinely monitored by START-3 to ensure the appropriate selection and utilization of proper personal protective equipment (PPE) and potential implementation of engineering controls to manage fugitive dust possibly containing hazardous substances.

ERRS conducted the physical removal of hazardous wastes, the staging of waste that was to remain on site pending further waste characterization and identification of appropriate disposal alternatives, and the appropriate transfer and offsite disposal of materials from Site. ERRS utilized a front-end wheel-loader, an excavator, and a mini track loader to excavate soil material with levels of radioactivity, lead, and arsenic exceeding their respective action levels.

ERRS excavated soils contaminated with radionuclides above the cleanup goal to the north and east of Building 1, and staged these excavated soils within the concrete foundation of the former Building 3 (Waste Pile 1). Soils were excavated up to the concrete footing of the foundation of former Building

3. Screening by START-3 and NRC indicated that soils under the concrete footing on the west side of former Building 3 were also contaminated above the cleanup goal. The OSC determined not to remove the concrete footing and pad, as would be necessary to access these contaminated soils.

ERRS then addressed processed ore material located in the northwest corner of Building 1 that exhibited lead and arsenic at concentrations exceeding actions levels, but did not have elevated radionuclides. ERRS excavated this material and staged it within Building 1 (Waste Pile 2). Within Building 1, ERRS also removed processed thorium and uranium wastes into plastic drum liner bags and staged them along the northern interior wall.

ERRS then excavated radionuclide contaminated soils located west of Building 1 near the two compartmentalized box tanks. The excavated soils were staged westerly adjacent to the excavated area (Waste Pile 3). Subsequent screenings performed by START-3 indicated that the area excavated was below 200 µR/hr.

Meanwhile, START-3 conducted further investigation of the upper tailings pond to characterize arsenic and/or lead contaminated soils exceeding the cleanup goal. The 2006 site investigation had identified a relatively small area of contamination described as 25 feet by 100 feet and unknown depth, but thought to be surficial only as the tailings impoundment reportedly had not been used for containing tailings. Contaminated material was thought to be wash down only from the mill area. During Phase I, START-3 re-examined the upper tailings impoundment by establishing a grid pattern across the upper tailings impoundment consisting of cells measuring approximately 10-feet by 15-feet. START-3 screenings from within the grid cells indicated that the majority of the former tailings pond exhibited elevated levels of arsenic and lead with results as high as 5,787 ppm and 7,780 ppm, respectively, thereby exceeding the action levels for arsenic and lead. Within several grid cells, either arsenic or lead exceeded the action levels at a depth of approximately 2.5 feet below ground surface (bgs). Innov-X FPXRF screening results are documented within the START-3 Site logbook.

The volume of contaminated material exceeding the cleanup goal for lead and/or arsenic in the upper tailings impoundment was much greater than what had been planned and budgeted for. The OSC determined that the upper tailings impoundment was a low priority in terms of risk, compared with contamination in the mill area which was much more subject to human exposure. Also, there was not direct surface runoff from the upper tailings impoundment to the Salmon River. The OSC determined to shelve plans for cleanup of contaminated material in the upper tailings impoundment, pending additional discussion with stakeholders (i.e., IDEQ and Forest Service) and evaluation of risk.

On 26 October 2007, START-3 collected four samples from excavated and staged waste piles and scheduled them for gamma spectroscopy analysis (Figure 5-1). A 10-point composite sample (SR-WP1-01) was collected from Waste Pile 1. START-3 collected 5-point composite samples from Waste Pile 2 (SR-WP2-2) and Waste Pile 3 (SR-WP3-3). In addition, START-3 collected a 5-point composite sample from the bagged thorium and uranium waste (SR-WM-04). Samples were shipped to the U.S. EPA National Air and Radiation Environmental Laboratory (NAREL) for gamma spectroscopy analysis.

On 30 October 2007, NAREL provided draft laboratory analytical results for the four samples collected by START-3. The analytical results indicated that processed thorium and uranium waste piles at the site exceeded the NRC threshold for "source material," defined by 10 Code of Federal Regulations (C.F.R.) Part 40 as 0.05% by dry weight of thorium or uranium.

On 31 October 2007, ERRS subcontractor shipped a roll-off bin (12 tons) of Arsenic and Lead contaminated soils (non-rad) for disposal at Subtitle C facility in Grandview, Idaho.

On 01 November 2007, ERRS removed the contents of the tank labeled "corrosives" utilizing a vacuum truck to empty 1,066 gallons of hazardous waste liquid (sodium hydroxide solution, pH 14) from the remaining tank. This material was transferred to US Ecology in Grandview, Idaho for disposal. One of the two compartmentalized box tanks was subsequently dismantled and staged on Site with other miscellaneous debris at a location southerly adjacent to Building 1. The second (empty) tank was rendered unusable for storage and overturned.

On 01 November 2007, ERRS subcontractor transferred two truck loads of unprocessed thorium ore (approximately 47 tons) for disposal at US Ecology (Grandview, Idaho). Additional unprocessed ore material was staged in place on Site.

Remaining waste piles of unprocessed thorium ore, processed thorium and uranium contaminated material, and mixed waste (elevated radionuclides and arsenic content) were secured on site pending certain waste determination and identification of appropriate disposal options. On 02 November 2007, all EPA, EPA contractor personnel, and all equipment, including the command post, were demobilized from Site.

During the period leading up to Phase II, the EPA and the NRC communicated on the regulatory status of the on-site radiological waste. The EPA received a letter (March 2008) from the NRC indicating that the waste material on Site was not "by-product material" per the Atomic Energy Act (AEA). The meant that the waste could be appropriately disposed of as "source material" at only NRC licensed facility within the Northwest for

receiving and disposing of source material; the U.S. Ecology, Inc. (USEI) facility in Richland, Washington.

The EPA and ERRS also considered the issue of arsenic and lead contaminants in approximately 23 cubic yards of radioactive material located on Site. The presence of arsenic and lead within the radioactive materials could cause the waste to be "mixed waste" (regulated both as radioactive "source material" and as Resource Conservation and Recovery Act (RCRA) hazardous waste). On 10 October 2007, ERRS sent a representative to the Site to collect a sample for Toxicity Characteristic Leaching Procedure (TCLP) Metals analysis (EPA Method 6010B) which included mercury (EPA Method 7470). Analytical results failed TCLP for lead, indicating that the material was indeed "mixed waste." ERRS explored options for disposal of mixed waste and on site fixation of the hazardous constituents so that it could be disposed of as source material, not mixed waste.

5.1.2 Phase II: 27 May 2008 through 4 June 2008

On 27 May 2008, EPA, ERRS, START-3, and the NRC remobilized to the Site in order to manage disposal of stockpiled wastes and complete the cleanup.

On 28 May 2008 ADT Environmental Solutions LLC (ADT) (an ERRS subcontractor) used a proprietary treatment agent called "L1," to permanently fixate metals in approximately 2 cubic yards of mixed waste. Following the treatment of the mixed waste, ERRS collected a 5-point composite sample for TCLP lead analysis through a subcontracted laboratory, Test America (Spokane, Washington).

From May 28 through through May 30, 2008 ERRS excavated stockpiled waste piles of radionuclide "source material: and placed the material into 1 cubic yard "supersacks" for transfer to the U.S. Ecoloogy NRC licensed disposal facility in Richland, Washington. A total of 55 super sacks were staged on Site.

Additionally, a small volume of contaminated material that had been identified during NRC site screening activities was hand-dug from an end-of-pipe area located along an embankment south of Building 1. ERRS also hand-dug an area identified along the same embankment, approximately 75 feet southeast of the southeast corner of Building 1 near a length of rusted drainage culvert. The material was placed into a supersack.

Upon completion of placing all the excavated and hand-dug ore materials into super sacks, ERRS performed a dry decontamination (decon) procedure of the mini excavator and hand-tools. The NRC screened the equipment using a Ludlum 2241 equipped with a pancake probe following the ERRS decon. The results were below 200 counts per minute.

Under direction of the OSC, START-3 conducted a more detailed examined the former tailings impoundment. START-3 collected four samples from the two explorative test pits excavated by ERRS. Samples were screened by START-3 using the FPXRF instrument. The results and the coordinates for the two explorative test pits are detailed in Table 3.

Table 3
FPXRF Screening Results For Explorative Test Pits – Upper Tailings Pond
Salmon River Uranium Development Site
North Fork, Lemhi County, Idaho

Sample ID	FPXRF Results			
	Lead (ppm)	+/- (ppm)	Arsenic (ppm)	+/- (ppm)
Test Pit No. 1: N45°23'04.7" W114°03'53.3"				
TP1-053008-A	125	11	**3189**	56
TP1-053008-B	31	6	<18	--
TP1-053008-C	**2599**	48	<100	--
TP1-053008-D	**1931**	34	<75	--
Test Pit No. 2: N45°23'04.5" W114°03'52.6"				
TP2-053008-A	200	14	**2599**	52
TP2-053008-B	244	15	**2317**	49
TP2-053008-C	43	6	<17	--
TP2-053008-D	692	21	64	19

Key:
ppm – parts parts per million
BOLD – Exceeds action levels set forth in EPA's Region 6 Human Health Medium Specific Screening Levels
A – 1 1-3 inches below ground surface
B – 1 feet below ground surface
C – 2 feet below ground surface
D – 3 feet below ground surface
-- – Result was not detected and as such, resulting +/- (ppm) not provided by instrument

On 02 June 2008, offsite transportation of the waste streams commenced. Two flatbed trucks were loaded with 30 tons each of processed source material that had been packaged into 1 cubic yard sacks for transfer to US Ecology NARM Services (Richland, Washington) facility. All truck loads were appropriately secured and placarded in accordance with Department of Transportation (DOT) requirements.

On 03 June 2008, one more flatbed truck was loaded with the remaining 23 tons of processed source material in 1 cubic yard super sacks for disposal at U.S. Ecology in Richland, Washington. Additionally, the remaining unprocessed ore (20 tons each) was loaded into two end dump truck/trailers for transport to the RCRA Subtitle C disposal facility in Grandview, Idaho.

START-3 confirmed the excavation footprints were all below the 200 µR/hr action level for residual radioactivity and ERRS proceeded to make preparations for demobilization from Site. As of 04 June 2008, all EPA and EPA contractors were demobilized. The NRC personnel remained at the Site to complete their final survey and collect confirmation samples as required by their closeout requirements and the Multi-agency Radiation Survey and Site Investigation Manual (MARSIM).

6.0 POST REMOVAL SITE CONTROLS

The scope of work for this RA involved the removal of hazardous substances and surficial contamination and residual radioactivity from processed and unprocessed ores stockpiled and spilled on the Site. Screening performed by START-3 during removal activities and localized screening within excavation footprints indicated that no removable contamination above the established cleanup goals remained in the area of the former mill (except possibly elevated radionuclide contaminated material beneath concrete footings and foundation pad of former Building 3). There remains a significant volume of arsenic and lead contaminated soils in the former upper tailings impoundment. Removal activities in this area of the Site were not undertaken, as it was considered a lower priority in terms of threat to public health or the environment. Furthermore, the remoteness of the Site coupled with a locking gate on the main access road protects the integrity of the Site and its condition. The OSC will discuss with other stakeholders (notably Idaho DEQ and U.S. Forest Service) conditions with respect to the upper tailings impoundment.

7.0 WASTE MANAGEMENT, TRANSPORTATION, AND DISPOSAL

7.1 Phase I: 23 October 2007 through 2 November 2007

The on-site waste streams created during Phase I were removed for transfer and offsite disposal between 31 October 2007 and 02 November 2007. ERRS filled one roll-off box with 11.89 tons of excavated arsenic and lead contaminated materials. This roll-off box was transferred off-site for fixation treatment on 31 October 2007. The second roll-off was filled with 5.2 yd^3 of non-RCRA hazardous debris (including solidified residual material from the compartmentalized box tank labeled "sulfuric acid") and transferred offsite on 02 November 2007 for direct landfill to US Ecology (Grand View, Idaho).

On 01 November 2007, a vacuum truck was utilized to empty 1,066 gallons of hazardous waste liquid (sodium hydroxide solution, pH 14) from the remaining tank. This material was transferred to US Ecology RCRA Subtitle C facility (Grandview, Idaho) for neutralization and disposal.

On 02 November 2007, ERRS loaded approximately 47 tons un-processed ore into two end dump truck/trailers for disposal at US Ecology (Grandview, Idaho).

7.2 Phase II: 27 May 2008 through 4 June 2008

On 02 June 2008, two flatbed trucks were loaded with one cubic yard super sacks containing the excavated source material (30 tons each) for transfer and disposal at US Ecology NARM Services (Richland, Washington) facility. All truck loads were appropriately secured and placarded in accordance with DOT requirements.

On 03 June 2008, two end dump truck/trailers were loaded with approximately 22 tons each of unprocessed ore to transfer and disposal at US Ecology (Grandview, Idaho). In addition, ERRS offloaded a minimal quantity of PPE and debris generated during the RA into the truck destined for US Ecology (Grand View, Idaho).

7.3 Disposition of Wastes Summary

The disposition and quantities of the wastes and location of the disposal facilities are summarized in Table 4 below. The original manifests and certificates of disposal are contained in the Site files.

Table 4
Waste Materials and Disposition Summary
Salmon River Uranium Development Site
North Fork, Lemhi County, Idaho

Waste Material	Quantity	Location
Hazardous Waste Liquid (D002). Sodium Hydroxide solution	1,066 gal	US Ecology Idaho, Inc. 20400 Lemley Road Grand View, ID 83624
Hazardous Waste Solid (D004, D008). Arsenic and lead contaminated soils	11.89 tons	
Solid Waste – non RCRA hazardous debris	5.2 yd^3	
Radioactive material, unprocessed ore with naturally occurring radionuclides from thorium content	90.72 tons	
Radioactive Material – Source Material, bagged soils	82.5 tons	US Ecology NARM Services Hanford Reservation Richland, WA 98352

8.0 SAMPLING AND MONITORING ACTIVITIES

8.1 Phase I: 23 October 2007 through 02 November 2007

All sampling and monitoring activities were conducted in accordance with the Site-Specific Sampling Plan (SSSP), approved (23 October 2007). Screening was conducted to identify the extent of contamination above cleanup goals requiring excavation, and to confirm that contaminated materials were removed to at or below the cleanup goal where areas had been excavated. Samples were collected from waste piles staged on site and sent laboratory analysis as necessary to make appropriate waste determinations and identify disposal options.

8.2 Phase II: 27 May 2008 through 04 June 2008

All sampling and monitoring activities were conducted in accordance with the Site-Specific Sampling Plan (SSSP), approved (23 October 2007).

Following excavation of materials, START-3 confirmed the excavation footprints were all below the 200 µR/hr action level for residual radioactivity.

9.0 QUALITY ASSURANCE / QUALITY CONTROL

START-3 collected four samples from waste stockpiles on site and scheduled them for gamma spectroscopy analysis. A 10-point composite sample (SR-WP1-01) was collected from Waste Pile 1. START-3 collected 5-point composite samples from Waste Pile 2 (SR-WP2-2) and Waste Pile 3 (SR-WP3-3). In addition, START-3 collected a 5-point composite sample from the bagged thorium and uranium waste (mixed waste) (SR-WM-04). Samples were shipped via Federal Express to NAREL for gamma spectroscopy analysis with a request for a 48-hour turn-around-time (TAT) for draft results. To accomplish the 48-hour TAT, NAREL and the EPA OSC agreed to modifications in the sample preparation methods outside the normal NAREL SOPs. Therefore, the results are estimates of the concentrations of thorium and uranium isotopes present in the samples, resulting in thorium interference in the uranium spectra. The uranium spectral regions of interest were adjusted, but thorium interference remains.

Due to the quick TAT requirement, the results did not go through the NAREL review process.

One sample container was damaged during shipping and leaking into the bag surrounding it. However, the bag was not damaged. Adequate volume was available to complete the sample analysis. All holding times were met.

10.0 COMMUNITY RELATIONS

10.1 Intergovernmental Coordination

EPA coordinated its actions with the NRC and the IDEQ. The NRC has regulatory authority for radiological contamination at the Site because of licenses issued by the AEC (predecessor to the NRC) in 1959, which allowed the former Site operator to possess and process radiological source material at the Site. The NRC maintained a presence during the Removal Action, assisting the EPA with delineating contaminated areas on the Site and performing daily radiation screening of personnel and equipment. IDEQ performed Site visits to observe RA operations.

11.0 HEALTH AND SAFETY

During this RA, heavy metals, including arsenic, copper, and lead, and radionuclides were each contaminants of concern. An action level was established on the basis of the highest concentration of contaminant on the Site. Since arsenic was at the highest concentration within on-site soils, it drove the action level for particulates (0.0431 milligrams per cubic meter (mg/m^3)). In addition, sustained readings of 1-2 milli-roentgen equivalent in man/hour (mrem/hr) were established for materials emitting gamma radiation.

In order to mitigate exposure within areas of known heavy metal and radionuclide contamination, air purifying respirators were required as per the Level C PPE guidelines set forth within the Site Health and Safety Plan (HASP). In addition, air particulate monitors (personal Data RAM by MIE Instruments, Serial Numbers 5020 and 5031) were placed where the performance of removal work could generate fugitive dust. The Personal Data RAMs indicated exceedances of the air particulate action level during periods of material handling, although, unsustained. Reduced handling, engineering controls including a 500-gallon water trailer equipped with a hose and spray nozzle, and frequent precipitation contributed to the mitigation of fugitive dust.

The NRC provided operational health physics support throughout the RA. Regular monitoring was performed by the NRC and START-3 using a Ludlum 2241 equipped with a pancake probe ensured no radioactive contamination of on-site personnel or equipment occurred. This monitoring occurred each time on-site personnel departed the Site, including lunch breaks.

Additional considerations to hazards associated with working on an RA were evaluated. Guidelines set forth by the HASP for working within those specific conditions were adhered to throughout the operation. Further controls included personal hygiene for which a hand-wash station was brought to Site.

12.0 DIFFICULTIES ENCOUNTERED / RECOMMENDATIONS

12.1 Difficulties

A primary factor affecting this RA was the making of appropriate waste determinations with respect to low level radionuclide contaminated materials. EPA coordinated closely with the NRC to identify materials that were considered unprocessed (and did not need to be disposed of at an NRC-licensed facility), and processed materials that were source material (0.05% by dry weight of thorium and/or uranium, as defined in 10 C.F.R. Part 40), and required disposal at an NRC-licensed facility). Additionally, EPA got clarification from the NRC as to that these materials did not meet the Atomic Energy Act (AEA) definition of "byproduct material."

Another difficulty included the identification of a much greater volume and depth of arsenic and lead contaminated soils in the former tailings impoundment than what was indicated in the Removal Site Investigation Report and planned and budgeted for in this RA. Further investigation into this area may be required.

12.2 Recommendations

12.2.1 Means to Prevent a Recurrence of the Discharge or Release

The Site is currently owned by Orval and Antonia Baird and there are currently no plans for redevelopment by the owners or outside parties. The RA involved removing of stockpiled material and removable surficial contamination exhibiting heavy metal and radionuclide contamination above the established cleanup goals. No removable surficial contamination remains at the mill site area above the established cleanup goals.

The surface extent and depth of arsenic and lead contaminated soils in the former tailings pond were much greater than anticipated. Additional work may be required to evaluate the potential risk of this material.

12.3 Means to Improve Removal Activities

None at this time.

13.0 SUMMARY

The EPA completed a time-critical RA at the Site located near North Fork, Lemhi County, Idaho. The RA was performed to mitigate the release of hazardous substances as defined by sections (§§) 101(14) and 101(33) of CERCLA, as amended, 42 U.S.C. §§ 9601(14) and (33). This RA involved the removal and appropriate disposal of on-site hazardous chemicals and radiological contaminants having the potential to pose an imminent and substantial endangerment to public health or welfare, or the environment.

Removal actions occurred during the course of two phases:

Phase I – 23 October 2007 through 02 November 2007, and
Phase II – 27 May 2008 through 04 June 2008.

During Phase I, waste materials were removed from two, 6,800-gallon compartmentalized box tanks, waste material containing elevated levels of arsenic and lead exceeding 280 and 800 ppm respectively, and on-site areas harboring unprocessed ore material with residual radioactivity greater than 200 µR/hr. These waste materials were transported offsite for disposal at a US Ecology Subtitle C facility located in Grand View, Idaho.

However, on-site waste materials were identified during Phase I which required deliberation on the part of both the EPA and the NRC due to characterization and disposal pathway concerns.

During Phase II, remaining stockpiled waste materials were removed from the Site. These waste materials included unprocessed ores and radioactive (“source”) material. The unprocessed ores were transported to US Ecology (Grand View, Idaho) and the source material to US Ecology NARM Services (Richland, Washington).

Following the excavation and removal of all waste material on Site, areas and excavation footprints were screened using FPXRF and Ludlum instruments. Results indicated levels were below the action levels set forth in the Site Specific Sampling Plan: 200 µR/hr for residual radioactivity; 800 ppm for lead; and 280 ppm for arsenic.

In addition, two explorative test pits were dug within the former tailings impoundment. The findings from these test pits indicated high concentrations of arsenic and lead. Further investigation would be required prior to any decision that additional removal actions should be taken.

Concurrently, the NRC performed Site closure actions while EPA and EPA contractors were on Site. The guidance followed by the NRC, while similar in nature, deviated from that followed by the EPA in-so-far as decision areas and clean-up requirements. The NRC additionally supported the EPA with issues related to health physics and residual radioactivity.

14.0 REFERENCES

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ATTACHMENT A
ACTION MEMORANDUM

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
IDAHO OPERATIONS OFFICE
1435 N. Orchard St.
Boise, Idaho 83706

August 9, 2007

ACTION MEMORANDUM

SUBJECT: Request for Approval of Time-Critical Removal Action – Salmon River Uranium Development Site, North Fork, Idaho

FROM: Greg Weigel
On-Scene Coordinator

THRU: Chris D. Field, Manager
Emergency Response Unit

TO: Daniel D. Opalski, Director
Office of Environmental Cleanup

SSID: 10DX

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of a proposed time-critical removal action described herein for the Salmon River Uranium Development site (Site), Lemhi County, Idaho. This proposed removal action is to remove and dispose of hazardous chemical and radiological contaminants at the site that may pose an imminent and substantial endangerment to public health or welfare, or the environment. The proposed removal action will not address fixed radiological contamination on building surfaces at the Site that pose a lesser risk.

II. SITE CONDITIONS AND BACKGROUND

The CERCLIS ID # for the Site is IDN001002662. This Action Memorandum is for a proposed time-critical removal action.

A. Site Description

1. Site location

The Site is located adjacent to Forest Service Road 030, approximately 5 miles west of North Fork and State Highway 93, in Lemhi County, Idaho. The Site property is approximately 21 acres located in Section 26, Township 24 North, Range 20 East, on the north side of the Salmon River. The precise location is 45° 22'46" North Latitude; 14° 04'58" West Longitude. The Site is on private property surrounded by land managed by

the U.S. Forest Service. The nearest residents are located five miles east of the Site in North Fork. The primary land use is recreational, as the Site is located adjacent to the Salmon River within the Salmon River National Wild and Scenic River system.

2. Site characteristics

The Site includes a former ore processing building built in 1958 and concrete pads of former out-buildings, located on a leveled area up a steep slope from the Salmon River. The former processing building is accessed via a private, gated and locked access road from Forest Service Road 030. The building is approximately 2,500 square feet in size with a poured concrete floor. The building is open, as much of the exterior siding has been removed. Various waste piles, including piles of processed and unprocessed ore, are located inside the building and surround the building. Outside of the building to the west are two large compartmented rectangular box tanks (6,800 gallon capacity each). Down-gradient of the ore processing area are two dry former tailings ponds. Berms created for the tailings ponds block the natural drainage path to the Salmon River.

The Site is located at approximately 4,000 feet elevation. Annual precipitation is approximately 14 inches. The Site typically has snow cover of one foot or less from December through March.

3. Site history

In March 1958, Salmon River Uranium Development, Inc. (SRUD) purchased the Site property. By letter dated October 6, 1958, SRUD applied for a U.S Atomic Energy Commission (AEC) license to chemically process source material from the Sunnyside Claims at North Fork, Idaho. During the period of October 1958 to October 1959, SRUD operated under two licenses issued by the AEC. The first license entitled SRUD to transfer, deliver, possess and have title to raw source material from the Sunnyside Claims at North Fork, Idaho. The second license authorized SRUD to process raw source material from the Agency Creek Thorium Corporation of Salmon, Idaho. All of the activities were to take place at the SRUD facility. The licenses expired in 1959 and SRUD ceased activities at the Site.

The Site property was owned by James V. Joyce from 1969 until 1978, when it was sold to the National Nuclear Reserves Corporation, of which Mr. Joyce was president.

In 1992, the property was sold to Antonia Baird, and later transferred to Antonia and Orval Baird. Mr. Baird had previously worked for the Joyce Corporation. In 1998 or 1999, Mr. Baird conducted processing of several batches of thorium ore at the Site. The Bairds are the current property owners.

4. Removal site evaluation

In a letter dated December 6, 2005, the U.S. Nuclear Regulatory Commission (NRC) requested EPA assistance to clean up radiological and hazardous materials contamination at the Site. The NRC stated that the property owner lacked the technical and financial resources to clean up the Site, which was a former NRC licensee and under the purview of NRC's regulatory requirements for cleanup of radiological contamination. The NRC stated that results of a radiological scoping survey conducted in October 2003 showed that the property does not meet the unrestricted release criteria in 10 CFR Part 20 for radiologically contaminated NRC licensed sites. The NRC stated during subsequent discussions that they do not have a financial program to clean up licensed sites, but typically address necessary cleanup through regulatory action with the site owner or operator.

The EPA OSC and EPA START contractor conducted a sampling site visit on June 5 through 7, 2006. The removal assessment included field screening for gamma radiation at areas considered potential contamination sources inside and around the former processing building. Additionally, areas and waste piles were screened for metals concentrations using a hand-held x-ray fluorescence instrument. Samples for laboratory analysis were collected at potential contamination sources based on the field screening. A Removal Assessment Report dated April 13, 2007 provided information that heavy metals concentrations in waste areas at the Site are as high as 116,000 mg/Kg for arsenic. Lead concentrations are as high as 48,600 mg/Kg, and copper as high as 178,000 mg/Kg. Additionally, uranium and thorium processed and unprocessed ore piles show elevated gamma radiation levels up to approximately 1,000 μR/Hr. Other observations at the Site included various small containers of unknown liquids and solids, and the two large box tanks marked "Corrosives," which contained several compartments and numerous places where compartments had corroded through and lost their contents to the surrounding soils.

5. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

Heavy metals and radionuclides present at the Site at elevated concentrations are hazardous substances as defined by sections 101(14) and 101(33) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. §§9601(14) and (33). Waste areas at the Site, inside and outside of the former processing building, contain elevated concentrations of hazardous substances, including arsenic, lead, copper, and processed and unprocessed ores containing elevated radionuclides, which have released and/or present a threat of release to the environment. Additionally, material from two 6,800 gallon compartmentalized tanks has leaked onto the ground. Specific contents of the tanks is unknown, but is reported to include spent sulfuric acid. TCLP analysis conducted by the Idaho Department of Environmental Quality (IDEQ) of material released to the soil from one of the tanks showed chromium

in TCLP leachate to be at 5.5 ppm, above the RCRA regulatory threshold for hazardous waste.

6. NPL status

This is not a National Priorities List (NPL) site. No remedial activities are in progress or anticipated at this time.

B. Other Actions to Date

In 1996, IDEQ conducted a site evaluation to identify hazardous wastes at the Site. IDEQ determined that wastes in containers of the two large box tanks labeled "Corrosives," which were characterized by the property owner as containing spent sulfuric acid, were likely Bevill exempt from RCRA, as they had been generated from the extraction of ores. IDEQ took no further action with regards to these tanks, but worked with the property owner and chemical suppliers to remove some other product chemicals at the Site.

In 2003, the NRC conducted a radiological scoping survey of the Site, and identified radiological contamination at the Site, including fixed radiological contamination in two site structures; loose contaminated soil in the two structures; and contaminated soils around the mill site associated with processed source material, byproduct material and natural ores. The NRC determined that the Site would require remediation in order to comply with the decommissioning requirements in Subpart E of 10 CFR Part 20 for unrestricted release.

In Spring 2007, IDEQ worked with the property owner to remove an un-registered 3,000 gallon underground diesel storage tank at the Site. Soil samples taken after the tank removal confirmed that diesel contamination was not present in surrounding soils.

C. State and Local Authorities' Roles

The Site is on private patented lands surrounded by the Salmon/Challis National Forest. IDEQ has determined that the Site presents a substantial threat to human health and the environment. Neither IDEQ nor Lemhi County has the ability to conduct the necessary cleanup. IDEQ has requested that EPA conduct a cleanup at the Site (letter dated May 21, 2007, attached). IDEQ has worked with the property owner to address certain regulatory issues within its purview, and remove certain chemical hazards at the Site.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at this site meet the criteria for a time-critical removal action as stated in the National Contingency Plan (NCP), 40 CFR Section 300.415, as follows:

A. Threats to Public Health or Welfare

1. Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations or the food chain (300.415(b)(2)(i)). While the Site is located on a private road behind a locked gate which is marked "no trespassing," it is otherwise un-fenced and easily accessible to the public from the adjacent public road and from the Salmon River. The adjacent public lands are part of the Salmon River National Wild and Scenic River system and are frequently used by river boaters, hunters and tourists. The property owner, Orville Baird, stated in conversation with the OSC that he frequently finds evidence of trespass on the Site when he visits the property. Recreational site users could be exposed to hazardous substances, including high levels of arsenic, lead and copper in soils and waste piles; spent sulfuric acid spilled onto the ground from the corroded tanks; and radionuclides from processed and un-processed thorium and uranium ore at the Site.

Concentrations of arsenic at the Site, in particular, pose a risk of causing acute health effects if ingested or inhaled. Exposure to arsenic at levels found at the Site can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, and damage to blood vessels. Additionally, the ingestion of inorganic arsenic can increase the risk of skin cancer and cancer in the lungs, bladder, liver, kidney and prostate. Inhalation of inorganic arsenic can cause increase risk of lung cancer.

Exposure to high lead levels can severely damage the brain and kidneys in adults or children. In pregnant women, high levels of exposure to lead may cause miscarriage. High-level exposure in men can damage the organs responsible for sperm production.

Breathing high levels of copper can cause irritation of your nose and throat. Ingesting high levels of copper can cause nausea, vomiting, and diarrhea. Very-high doses of copper can cause damage to your liver and kidneys.

Thorium and Uranium processed and unprocessed ore piles at the Site pose a risk from external radiation exposure. Direct gamma radiation at the Site from these piles exceeds a 10^{-6} cancer risk based on a recreational use exposure scenario.

2. High levels of hazardous substances or pollutants in soils largely at or near the surface that may migrate (300.415(b)(2)(iv)). Heavy metals concentrations in waste piles at the Site are as high as 116,000 mg/Kg for arsenic, 48,600 mg/Kg for lead, and 178,000 mg/Kg for copper. Uranium and thorium processed and unprocessed ore piles show elevated gamma radiation levels, up to 1,000 µR/Hr. Waste and ore piles are inside of the

open-sided former mill building, and outside of the building where they may migrate downward in soils or down gradient towards the Salmon River through rainfall, snowmelt, or other normal erosion mechanisms. Additionally, material characterized by the property owner as spent sulfuric acid has corroded through a large tank at the site and spilled to surrounding soils. TCLP analysis of the spilled material fails for chromium (5.5 ppm). This material, if not cleaned up, may also migrate vertically and laterally through soils.

3. The availability of other appropriate Federal or State response mechanisms to respond to the release (300.415(b)(2)(vii)). There are no other appropriate Federal or State response mechanisms that have the authorities and/or resources to respond to this release. The NRC has regulatory authority for radiological contamination at the Site because of licenses issued by the U.S. Atomic Energy Commission (predecessor to the NRC) in 1959, which allowed the former site operator to possess and process radiological source material at the Site. The NRC has told EPA, however, that they do not have a financial program for cleanup of licensed or formerly licensed sites, and furthermore, that the current property owner lacks the resources for conducting necessary cleanup under their regulatory authority. They have requested EPA assistance in cleaning up radiological contamination at the Site (attached letter dated December 6, 2006).

Additionally, IDEQ has requested EPA assistance in addressing hazards posed by mining wastes at the Site, and that certain wastes have not been addressed by IDEQ due to their Bevill exemption from RCRA. IDEQ also states that, to their knowledge, the current property owner is incapable of funding the cleanup needed to protect public health and the environment (attached letter dated May 21, 2007).

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site may present an imminent and substantial endangerment to public health or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Action

1. Proposed Action Description

The proposed removal action is to excavate and remove for proper disposal contaminated soils, waste and ore piles that contain elevated concentrations of hazardous metals or radionuclides above the cleanup goal. Additionally, the proposed removal action will fully characterize contents of 2 large compartmentalized box tanks and remove hazardous contents and spilled hazardous material and contaminated soils for disposal. Specifically, the proposed removal action will remove waste and contaminated soils from the following areas:

- Spent processed ore pile inside former processing building – approximately 14 cubic yards of material with high arsenic concentration.
- Approximately 2 cubic yards of sandy material inside former processing building with high lead concentrations.
- Characterize and remove, if determined to be hazardous, numerous small containers inside former processing building with unknown contents.
- Potential thorium processed ore pile just off concrete pad near east corner of former processing building, with elevated gamma readings. Exact volume is unknown because it is spread to surrounding soils, but estimated at 10 cubic yards.
- Potential uranium processed ore pile off of north corner of building, with elevated direct radiation. Approximately 2 cubic yards.
- Waste piles and soils along northwest side of building, with elevated direct radiation and high arsenic concentrations. Approximately 15 cubic yards.
- Thorium waste pile west of building with elevated direct radiation. Approximately 15 cubic yards.
- Thorium ore piles further west along cut bank with elevated direct radiation. Approximately 50 cubic yards.
- Upper tailings pond – sandy area with high arsenic concentration in soils. The sandy area is approximately 25 feet by 100 feet in area. The area with high arsenic concentration appears to be from surficial deposit of some material. Visual observation indicates that the material does not extend below surface elevation, however samples were not collected at depth to confirm this.
- Large box tanks. Characterize remaining contents of two compartmentalized tanks (6,800 gallon capacity each). Remove remaining hazardous contents. Excavate visually contaminated soils where contents have spilled from tanks.

Waste piles and other contaminated areas identified above are largely visually evident and initial excavation or removal will be done based on visual observation. A hand-held x-ray fluorescence monitor will be used for cleanup confirmation screening of areas excavated for metals contamination (lead & arsenic). The cleanup goal will be EPA Region 6 Human Health Soil Screening Levels for industrial outdoor workers which is 280 ppm for arsenic (non-cancer endpoint), and 800 ppm for lead. Cleanup confirmation screening for areas where material is removed or excavated because of elevated gamma radiation will be done using a Ludlum 192 micro-R meter. Emphasis will be placed on waste and/or piles with the highest radiation levels (>120 μR/Hr). Removing these piles is anticipated to reduce overall radiation levels so that the recreational use scenario exposure does not exceed 15 mrem/year.

2. Contribution to remedial performance

The proposed removal action will address the most significant threats at the Site from chemical and radiological contaminants. It is anticipated that fixed radiological contamination of mill building surfaces at the Site will not be addressed by this removal action. The fixed

contamination levels are minor risks by comparison and would require a significant effort to remove; either by scabbling the concrete floor to an unknown depth, or removal of the floor and building. The proposed removal action will appropriately address risks at the Site considering a recreational property use scenario, which is the most reasonable future anticipated land use at the Site. At a minimum, the proposed removal action will not preclude the possibility of additional work being done in the future to address fixed radiological contamination of mill building surfaces.

3. Description of alternative technologies

There are no viable alternative technologies that have been identified for the Site. Excavation and removal for disposal of relatively small areas of contamination is a standard technology for mining sites with discrete areas of contamination from processed and un-processed ores.

4. Engineering Evaluation/Cost Analysis (EE/CA)

This proposed action is for time-critical removal action, and an EE/CA therefore is not required.

5. Applicable or relevant and appropriate requirements (ARARs)

The NCP requires that removal actions attain ARARs under federal or state environmental or facility siting laws to the extent practicable, considering the exigencies of the situation. The proposed removal action will attain or exceed ARARs to the extent practicable. Below is a summary of potential ARARs that have been identified or otherwise considered for this project:

- Resource Conservation and Recovery Act, as amended (RCRA), 42 U.S.C. §§ 6901 et seq., and its implementing regulations codified in Parts 260 through 265, and 268 of the Code of Federal Regulations (CFR). The proposed removal action will involve the excavation, staging, off-site shipping and disposal of RCRA hazardous wastes. The following specific requirements have been identified at this time as ARARs:
  1) 40 CFR §§ 261.10 and 261.24, relating to characteristics of hazardous wastes including the toxicity characteristic;
  2) 40 CFR § 262.11, relating to hazardous waste determinations;
  3) 40 CFR § 265.17, relating to management of ignitable, reactive, or incompatible wastes;
  4) 40 CFR §§ 262.20, 262.21, 262.22, 262.23, 262.30, 262.31, 262.32 and 262.34, relating to hazardous waste accumulation, manifesting and labeling requirements prior to transportation of hazardous waste off-site;
  5) 40 CFR §§ 263.20 and 263.21, relating to off-site transport of hazardous waste (handling and manifesting requirements);
  6) 40 CFR Part 268, relating to off-site and on-site land disposal restrictions for hazardous wastes and hazardous debris; 40 CFR § 300.440, relating to the CERCLA "Off-Site Rule."

- Idaho Rules for Control of Fugitive Dust, IDAPA 58.01.01.650. These regulations are applicable to soil removal operations which may generate fugitive emissions. They require that reasonable precautions be taken to prevent particulate matter from becoming airborne, including using water or chemicals to control dust, covering trucks for transporting materials, and promptly removing excavated materials.

- Clean Water Act Storm Water Multi-Sector General Permit for Industrial Activities, 40 CFR 122.26. These regulations apply to discharges of storm water associated with "industrial activities," which include inactive mining facilities and hazardous waste landfills. The substantive requirements of the Storm Water Multi-Sector General Permit for Industrial Activities (Oct. 30, 2000) apply to elements of the removal action that may result in discharges of storm water to surface waters including the adjacent Salmon River. Best Management Practices (BMPs) must be used, and appropriate monitoring performed, to ensure that storm water runoff does not exceed state water quality standards.

- National Historic Preservation Act, Section 106, 16 U.S.C. 470f. The National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties. The State Historic Preservation Officer (SHPO) advises and assists Federal agencies in carrying out their section 106 responsibilities and cooperates with such agencies, to ensure that historic properties are taken into consideration. Historic sites or structures are those included on or eligible for the National Register of Historic Places, generally older than 50 years. Given the reported start of mining activity at the Site in 1958, it may be that no properties at the Site are 50 years or older and so eligible for the National Register. In any event, the OSC will coordinate with the SHPO regarding whether the proposed removal action may have any impacts to cultural resources at the Site. It is not expected that proposed removal activities will impact any cultural resources at the Site.

- Endangered Species Act, Section 7. Section 7 of the Act requires Federal agencies to assure that their actions are not likely to jeopardize the continued existence of endangered or threatened species. If the propose action may affect a listed species, consultation with the Trustee Agency is required. It is not anticipated that the proposed action is likely to jeopardize a listed species. The OSC will, however, coordinate with the U.S. Fish and Wildlife Service to obtain a list of endangered, threatened, proposed, and/or candidate species which may be present in the area, and to ensure that the proposed project will not likely jeopardize a listed species.

- Migratory Bird Treaty Act (MBTA), 16 USC 703 et seq. The MBTA makes it unlawful to "hunt, take, capture, kill" or take various other actions adversely affecting a broad range of migratory birds, including tundra swans, hawks, falcons, songbirds, without prior approval by the U.S. Fish and Wildlife Service. (See 50 CFR 10.13 for the list of birds protected under the MBTA.). The mortality of migratory birds due to building demolition or

construction activities is not a permitted take under the MBTA. The MBTA and its implementing regulations are relevant and appropriate for protecting migratory bird species identified within the Site. The selected removal action will be carried out in a manner that avoids the taking or killing of protected migratory bird species, including individual birds or their nests or eggs.

- U.S. Department of Transportation, 49 CFR Parts 171-180, relating to transportation of hazardous materials to off-site disposal facilities.

- Health and Environmental Standards for Uranium and Thorium Mill Tailings, 40 C.F.R. Part 192. Provides standards for cleanup of land and buildings contaminated with residual radioactive materials from inactive uranium processing sites. These potential ARARs are based on residential or industrial use and are not appropriate to the assumed land use at the Site. Cleanup goals for the proposed removal action will consider a recreational use exposure scenario.

6. Project Schedule

It is expected that project implementation will begin in September, 2007, and will take approximately 2 weeks to complete.

B. Estimated Costs

The estimated EPA Extramural costs to complete the proposed project are itemized below:

Extramural Contractor Costs:		
Cleanup Contractor Costs (ERRS)		$ 200,000
START Contractor Costs		$ 30,000
Extramural Costs Contingency	(20% Contractor Costs)	$ 46,000
Total, Extramural Costs		$ 276,000
Requested Removal Project Ceiling		$ 276,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If the proposed removal action is not implemented, high concentrations of hazardous metals, including arsenic and lead, and elevated direct radiation from uranium and thorium processed and un-processed ores, would continue to exist at the Site and pose a risk of exposure to recreational site users and trespassers. If not addressed, this contamination also poses a risk of migration vertically through soils and laterally towards the nearby Salmon River.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

EPA has conducted a preliminary potentially responsible party search for the Site. See the attached "Confidential Enforcement Addendum" for enforcement details.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Salmon River Uranium Development Site, Lemhi County Idaho, developed in accordance with CERCLA as amended, and not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at this site meet the NCP section 300.415(b)(2) criteria for a removal and I recommend your approval of the proposed removal action. The total EPA extramural project ceiling, if approved, will be $276,000.

X. APPROVAL / DISAPPROVAL

APPROVAL:

Daniel D. Opalski, Director
Office of Environmental Cleanup

8/9/2007
Date

DISAPPROVAL:

Daniel D. Opalski, Director
Office of Environmental Cleanup

Date

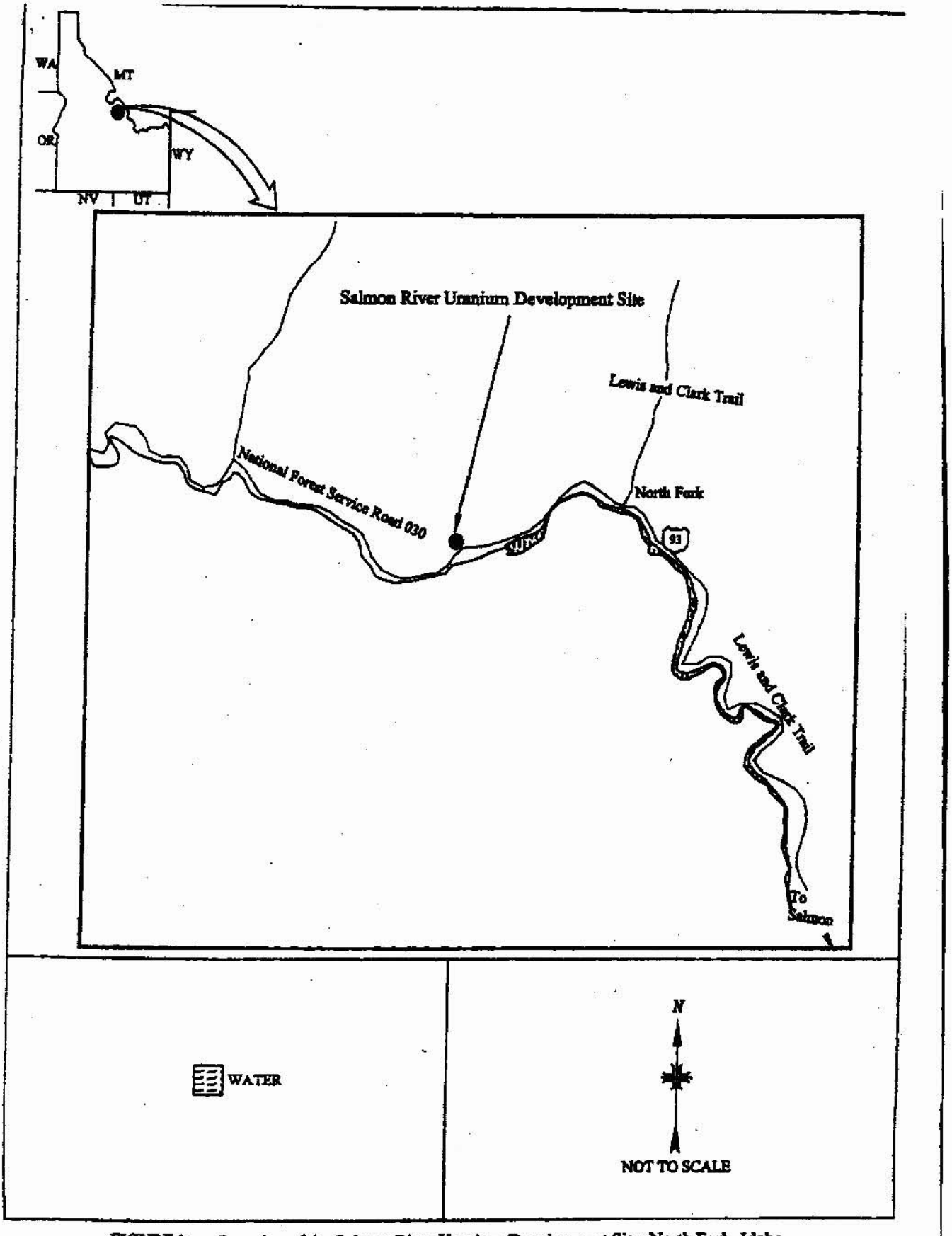

FIGURE 1: Location of the Salmon River Uranium Development Site, North Fork, Idaho

874-011 (2)

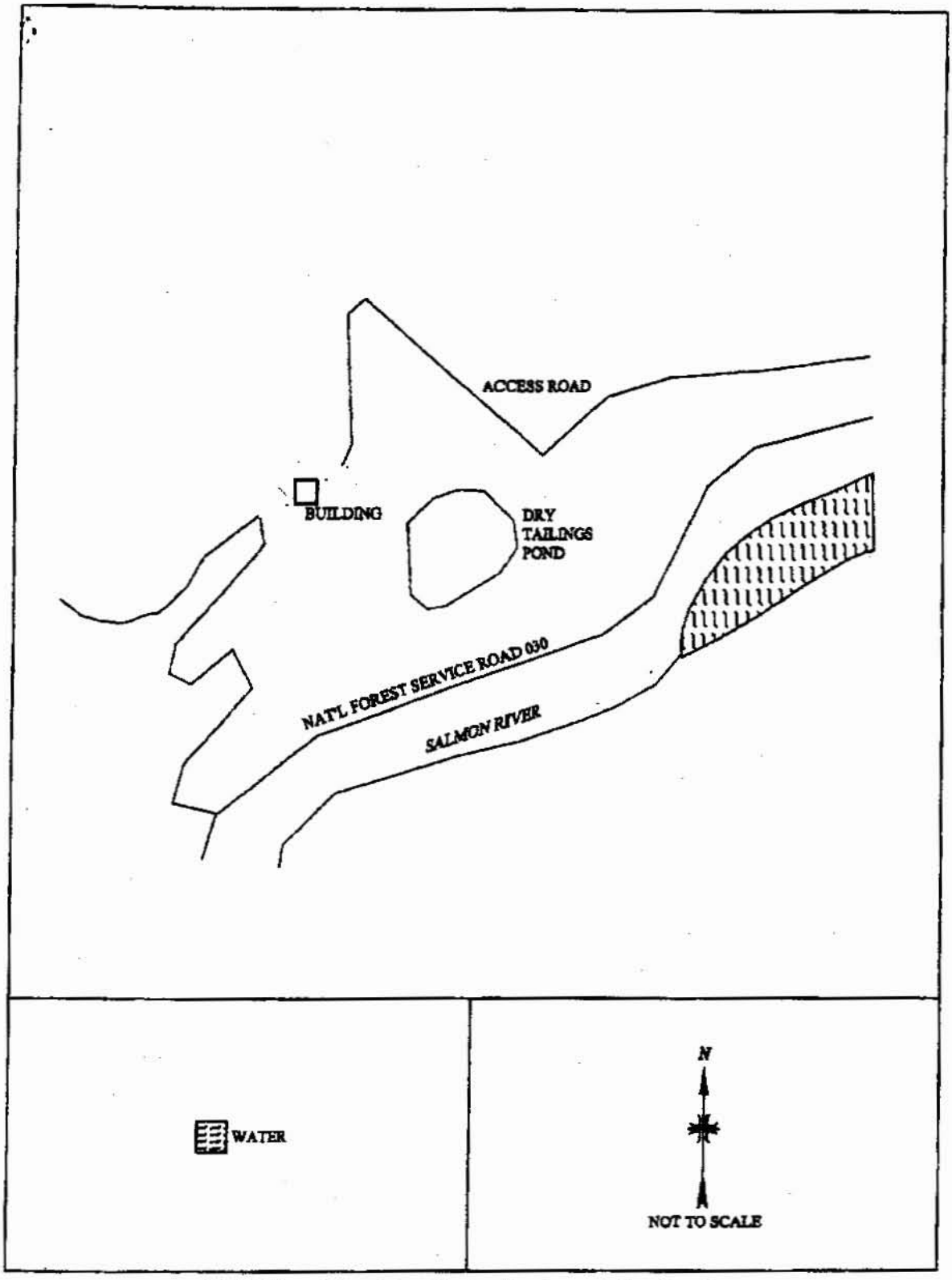

FIGURE 2: Salmon River Uranium Development Site - Overview

Figure 3

874-010 (2)

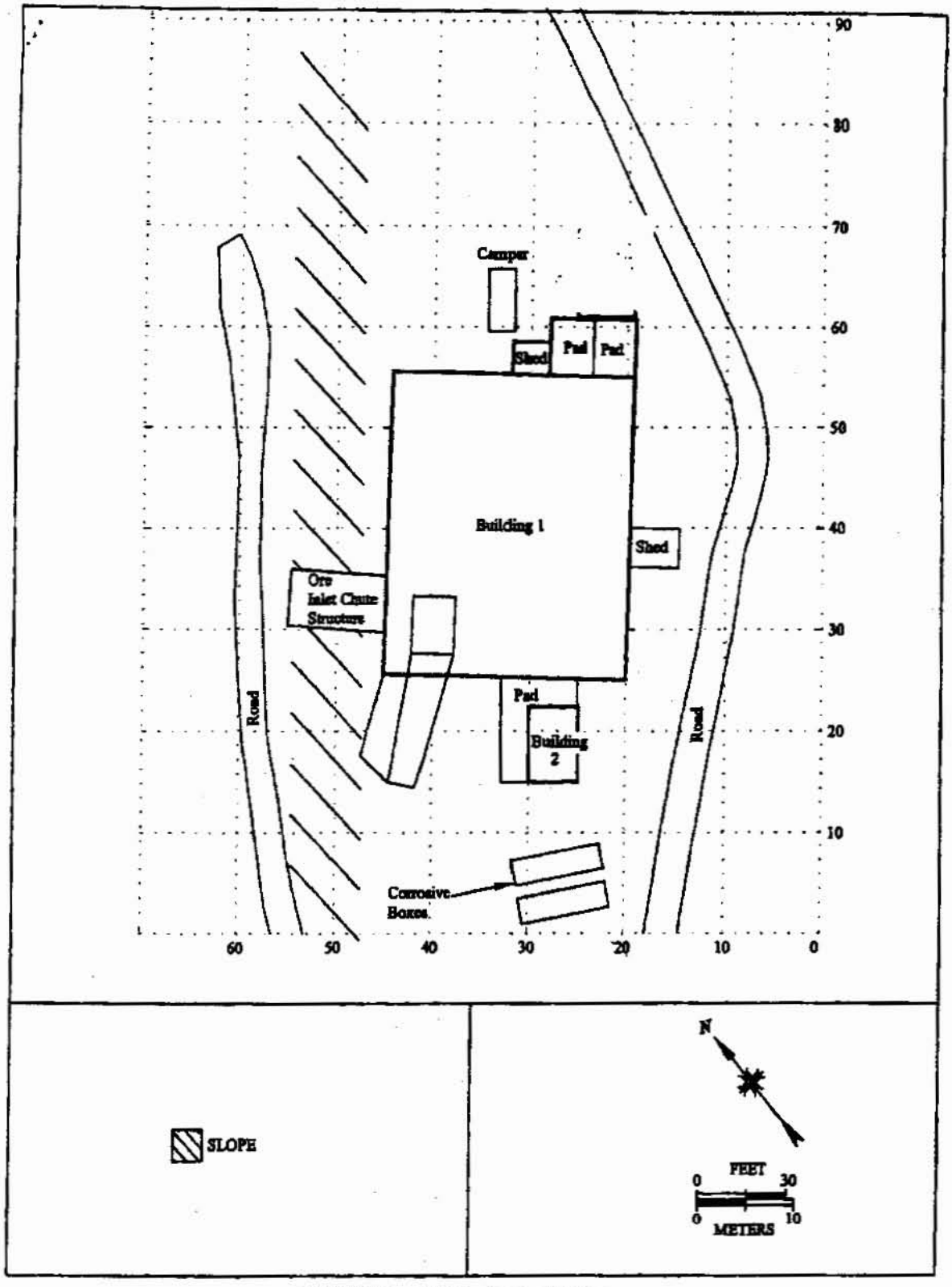

FIGURE 4: Exterior Area - Plot Plan

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 6, 2005

Mr. Greg Weigel
On-Scene Coordinator
U.S. Environmental Protection Agency-Region 10
Idaho Operations Office
1435 North Orchard Street
Boise, ID 83706

SUBJECT: REQUEST FOR ASSISTANCE TO SUPPORT REMEDIATION OF A CONTAMINATED PROPERTY IN NORTH FORK, IDAHO

Dear Mr. Weigel:

The U.S. Nuclear Regulatory Commission (NRC) is requesting assistance from the U.S. Environmental Protection Agency (EPA) to facilitate remediation of a property with radiological and hazardous material contamination in the State of Idaho.

The NRC is working with the State of Idaho and U.S. Department of Agriculture Forest Service on the decommissioning of the former Salmon River Uranium Development, Inc. (SRUD) mill site located near North Fork, Idaho. The property is located in Section 26, Township 24 North, Range 20 East, on the north side of the Salmon River. The mill consists of one main building and two adjacent buildings. The site's exterior property has two above-ground corrosive material storage tanks, two dilapidated camper trailers, an ore inlet chute structure, and a 0.8-acre dry tailings pond.

Based on previous site visits and historical information, the site currently has radiological contamination levels that would not meet the criteria for unrestricted release in 10 CFR Part 20, Subpart E. Radiological contamination is located inside the buildings and in the dry tailings pond, and is believed to extend to an area of 2 acres around the mill. The current owner of the property has conducted some hazardous waste remediation since 1996. Based on visual observation, the remaining hazardous material on the property includes two corroded sulphuric acid tanks, one underground diesel tank, and several small, empty plastic and glass acid containers.

The NRC and its contractor, Oak Ridge Institute for Science and Education, conducted a scoping survey at the property in October 2003. A copy of this scoping survey is attached. This survey does not represent a full radiological characterization of the property, which is necessary to determine the actual contamination levels and the amount of waste that was generated during the decommissioning project. I also have attached a copy of a site evaluation conducted by Mr. Robert Higdem of Idaho's Division of Environmental Quality during August, 1996.

Currently, the site is owned by private citizens who do not have the necessary technical and financial resources to remediate the facility and ensure compliance with the regulatory requirements in 10 CFR Part 20, Subpart E. After NRC consultation with the State of Idaho's Department of Environmental Quality, they have informed me they do not have funding

programs available for remediation of the SRUD site. Therefore, NRC requests EPA assistance in order to obtain adequate funding to support cleanup of the property. In addition, coordination with EPA is requested because the site contains hazardous waste that does not fall under NRC's purview. This financial support is necessary to remediate the SRUD site in a timely manner and ensure compliance with NRC's regulatory requirements. NRC will provide EPA the necessary support to ensure the SRUD site is remediated.

Please note that the attached documents are considered sensitive information and are not available for public inspection. Therefore, please do not distribute these documents to any person outside your office.

If you have any questions regarding this letter, the SRUD mill site, or if you need additional information (including coordinating a site visit), please feel free to call Rafael Rodriguez, Project Manager, at (301) 415-0193.

Sincerely,

Daniel M. Gillen, Deputy Director
Decommissioning Directorate
Division of Waste Management
and Environmental Protection
Office of Nuclear Material Safety
and Safeguards

Docket No.: 040-03400
License Nos.: R-0230 (expired), P-4001 (expired)

Enclosures:
1. Radiological Scoping Survey of the Salmon River Uranium Development, Inc. Processing Mill, North Fork, Idaho.
2. August 14, 15, 18, 1996 Site Evaluation by Idaho's Division of Environmental Quality.

cc: See Distribution

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, Idaho 83706 • (208) 373-0502

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

May 21, 2007

Jim Werntz, Director
Idaho Operations Office
U.S. Environmental Protection Agency, Region 10
1435 North Orchard
Boise, Idaho 83705

Re: Request to the U.S. Environmental Protection Agency to Initiate a Time Critical Removal Action at the Salmon River Uranium Development (SRUD) Millsite.

Dear Mr. Werntz,

With this letter, the Idaho Department of Environmental Quality (Department) requests that the Environmental Protection Agency (EPA) initiate a time-critical emergency action under the federal Comprehensive Environmental Response Compensation and Liability Act (CERCLA) at the Salmon River Uranium Mill site in Lemhi County, Idaho. The Department considers the site to pose a threat to human health and the environment due to the dangers posed by remaining mining wastes at the site and its vicinity to public access.

The Department's primary concerns include two corroded yellow tanks filled with multiple unknown materials. The tanks breached seams are leaking directly into the environment and remain a primary threat to human health and the environment. These tanks have been unaddressed by the Department due to their Bevill exemption from the Resource Conservation Recovery Act (RCRA). While not addressed, these tanks continue to pose an immediate threat to individuals, as well as site soils and groundwater. These tank contents are known to be not only extremely acidic, but to contain mercury, thereby having the potential to cause acute harm to individuals.

Other materials remaining on site, which are considered a threat by the Department include; the upper tailings pond, several discreet waste piles surrounding the building, as well as waste piles remaining inside the mill building. These wastes have been identified in the "Salmon River Uranium Development Mill Removal Assessment Report", written by TechLaw Inc. for the U.S. EPA dated April 13, 2007. Collectively, these waste areas contain extremely high levels of arsenic, copper and lead along with relatively high concentrations of other metals. Contamination from radioactive sources also exists at this site as well as processed thorium ore in deteriorated bags. These concentrations lead the Department to consider them to remain a substantial threat to human health and the environment.

Although this site is located on private property, it is easily accessible to the public both by the public road (FS 030), and the Salmon River which is directly down the hillside from the Millsite and is repeatedly visited by hunters, boaters, and general recreationists. In discussions with the property owner, Orval Baird, it has become obvious that the public has continued to trespass at this site regardless of his efforts in locking gates and posting signs. It has also come to Department's attention that Mr. Baird is also incapable of funding the cleanup needed in order to protect the public from these hazards. These factors contribute to our request for EPA to respond to this site under its CERCLA authority.

Thank you for your attention to this matter. Please feel free to contact me directly with any comments or questions at (208) 373-0502, or you may contact Jim Johnston in the Idaho Falls Regional Office at (208) 528-2650.

Sincerely,

Toni Hardesty
Director

c. Jim Johnston, DEQ-IFRO
Rob Hanson, IDEQ-CEN
Greg Weigel, EPA, Boise
Raphael Rodriguez, NRC, Washington D.C.
Ray Henderson, U.S. Forest Service, Salmon/Challis National Forest, Salmon
Orval Baird, P.O. Box 87, Tendoy, Idaho 83468

ATTACHMENT B
PHOTOGRAPHIC DOCUMENTATION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SALMON RIVER URANIUM DEVELOPMENT SITE

PHOTOGRAPH #1

Description: View of NRC personnel screening excavation area for elevated levels of residual radioactivity near southeast corner of Building 1, southerly adjacent to the foundation of the former Building 3 and Waste Pile 1 area along Northwest Corner of Building – Phase I

Date: 25 October 2007 – Phase I

Time: 1320

Photographer: Franki Jewell, START-3

Direction: North

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SALMON RIVER URANIUM DEVELOPMENT SITE

PHOTOGRAPH #2

Description: View of START-3 conducting FPXRF screening of excavated area within the northeast corner of Building 1 – Phase I

Date: 25 October 2007 – Phase I

Time: 1331

Photographer: Franki Jewell, START-3

Direction: North, Northeast

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SALMON RIVER URANIUM DEVELOPMENT SITE

PHOTOGRAPH #3

Description: Former dry tailings impoundment area, east of the main site – Phase I

Date: 31 October 2007 – Phase I

Time: 1540

Photographer: Franki Jewell, START-3

Direction: East, Northeast

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SALMON RIVER URANIUM DEVELOPMENT SITE

PHOTOGRAPH #4

Description: NRC personnel conducting RAD screening in excavated areas south of box tanks – Phase I

Date: 29 November 2007 – Phase I

Time: 0915

Photographer: Franki Jewell, START-3

Direction: West

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SALMON RIVER URANIUM DEVELOPMENT SITE

PHOTOGRAPH #5

Description: Waste Pile 1 staged on concrete berm north of the onsite building. Areas west, north, and east and adjacent to the concrete berm were excavated and staged on the concrete berm. The excavated area west of and adjacent to the concrete berm exceeded 200 µr/hr for RAD. This area was subsequently capped with onsite soil that did not exceed remedial goals for RAD, lead or arsenic – Phase I

Date: 29 October 2007 – Phase I

Time: 1535

Photographer: Franki Jewell, START-3

Direction: South

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SALMON RIVER URANIUM DEVELOPMENT SITE

PHOTOGRAPH #6

Description: ERRS excavating the unprocessed ore pile, loading soil into truck to be transported to US Ecology for proper disposal – Phase I

Date: 1 November 2007

Time: 1335

Photographer: Franki Jewell, START-3

Direction: North

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SALMON RIVER URANIUM DEVELOPMENT SITE

PHOTOGRAPH #7

Description: ERRS excavating wastes from corrosives box tank – Phase I

Date: 1 November 2007

Time: 0842

Photographer: Franki Jewell, START-3

Direction: West

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SALMON RIVER URANIUM DEVELOPMENT SITE

PHOTOGRAPH #8

Description: View of ERRS containerizing ore material from the stockpile atop the foundation of the former Building 3 foundation. The material is being placed into one yd^3 super sacks for offsite transfer and disposal. The front-end wheel loader supported the super sacks during filling – Phase II

Date: 28 May 2008 – Phase II

Time: 1338

Photographer: Bryan McKinnon, START-3

Direction: Northeast

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SALMON RIVER URANIUM DEVELOPMENT SITE

PHOTOGRAPH #9

Description: Placing soil bags on pallet by building 3 – Phase II

Date: 28 May 2008 – Phase II

Time: 1347

Photographer: Bryan McKinnon, START-3

Direction: Northwest

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SALMON RIVER URANIUM DEVELOPMENT SITE

PHOTOGRAPH #10

Description: Aerial View of Operation Already bagged contaminated soil to the left of photograph – Phase II

Date: 29 May 2008 – Phase II

Time: 1328

Photographer: Bryan McKinnon, START-3

Direction: South

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SALMON RIVER URANIUM DEVELOPMENT SITE

PHOTOGRAPH #11

Description: View of ERRS loading Truck #3 of unprocessed Ore – Phase II

Date: 3 June 2008 – Phase II

Time: 0744

Photographer: Bryan McKinnon, START-3

Direction: South

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SALMON RIVER URANIUM DEVELOPMENT SITE
PHOTOGRAPH #12

Description: Securing the load to truck for removal **–** Phase II

Date: 3 June 2008 – Phase II

Time: 1407

Photographer: Bryan McKinnon, START-3

Orientation: East

ATTACHMENT C
RADIONUCLIDE SAMPLE RESULTS

Data Package Checklist

(Initials do not signify approval)

Reviewer	Initials	Date
MASB QA Officer	____	_____
NAREL QA Manager	____	_____
MASB Chief	____	_____

Project: SALMON RIVER URANIUM SDG Number: 0700040

Date due: _____ Analysis: NAREL U-EICHROM

Type of Package: ☐ Data Summary Package ☐ Complete Package

Y	N	N/A		Comments
☐	☐	☐	All samples in the SDG are reported	
☐	☐	☐	All results are the ones intended	
☐	☐	☐	Printed results match the raw data	
☐	☐	☐	Error report forms are attached	
☐	☐	☐	SDG Form is attached, front and back	
☐	☐	☐	Analyst's checklist is attached	
☐	☐	☐	Original prep batch forms are attached	
☐	☐	☐	All supporting data sheets are attached	
☐	☐	☐	All raw data sheets appear to be correct	
☐	☐	☐	All handwritten notes are initialed and dated	
☐	☐	☐	Package is arranged correctly	
☐	☐	☐	Package appears to be complete	

Were holding times met? ☐Yes ☐No ☐N/A

Were all QC results acceptable? ☐Yes ☐No

Are there any exceptions to report? ☐Yes ☐No

Prepared by: _____

QAO Review

Y	N	N/A	
☐	☐	☐	All QC failures are noted
☐	☐	☐	Raw data look reasonable
☐	☐	☐	All exceptions have been noted

Comments: _____

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY
U ANALYSES

REPORT OF SAMPLE DELIVERY GROUP #0700040

Project:	Salmon River Uranium, North Fork, ID
Analysis Procedure:	Actinides (Uranium) by Extraction Chromatography
Report ID:	0700040-U
Report Type:	Original
Date Reported:	10/30/2007
Total Pages in Report:	16

SAMPLES

NAREL Sample #	Client Sample ID	Type	Matrix	Date Collected	Date Received
A7.06957W	SR-WP1-01	SAM	SOIL	10/26/2007	10/29/2007
A7.06958X	SR-WM-04	SAM	SOIL	10/26/2007	10/29/2007
A7.06959Y	SR-WP2-02	SAM	SOIL	10/26/2007	10/29/2007
A7.06960Q	SP-WP3-03	SAM	SOIL	10/26/2007	10/29/2007

EXCEPTIONS

1. Packaging and Shipping - NAREL sample A7.06957 container 2 was damaged en route to NAREL. The glass container was broken, and the sample was leaking into the bag surrounding it which was not damaged.
2. Documentation - No problems were observed.
3. Sample Preparation - In order to analyze the samples as quickly as possible, shortcuts in preparation were taken which is outside NAREL SOPs. The client was aware that analysts would be operating outside the SOPs and agreed to obtain results quickly.
4. Analysis - All results in this SDG are estimations of the concentrations of uranium isotopes present in the samples. During analysis, complete separation of the uranium and thorium was not achieved which caused thorium interference in the uranium spectra. The uranium spectral regions of interest were adjusted, but it is impossible to eliminate all thorium interference. This data package has not been through the NAREL review process, and therefore should be considered **DRAFT**.
5. Holding Times - All holding times were met.

QUALITY CONTROL

1. QC samples - All QC analysis results met NAREL acceptance criteria.
2. Yields - All chemical yields were within acceptance limits except the yield for NAREL sample A7.06960 which was above acceptance limits.
3. Instruments - Response and background checks for all instruments used in these analyses met NAREL acceptance criteria.

CERTIFICATION

I certify that this data report complies with the terms and conditions of the Quality Assurance Project Plan, except as noted above. Release of the data contained in this report has been authorized by the Chief of the Monitoring and Analytical Services Branch and the NAREL Quality Assurance Manager, or their designees, as verified by the following signatures.

Mary F. Wisdom — Date
Quality Assurance Manager, NAREL

John G. Griggs, Ph.D. — Date
Chief, Monitoring and Analytical Services Branch

GENERAL INFORMATION

SAMPLE TYPES

BLD	Blind sample
FBK	Field blank
SAM	Normal sample

ANALYSIS QC TYPES

ANA	Normal analysis
DUP	Laboratory duplicate
LCS	Laboratory control sample (blank spike)
MS	Matrix spike
MSD	Matrix spike duplicate
RBK	Method blank

QUALITY INDICATORS

RPD	Relative Percent Difference
%R	Percent Recovery
Z	Number of standard deviations by which a QC measurement differs from the expected value

EVALUATION OF QC ANALYSES

A method blank result is considered unacceptable if it is more than 3 standard deviations below zero or more than 3 standard deviations above a predetermined upper control limit. For some analyses NAREL has set the upper control limit at zero. For others the control limit is a small positive number.

NAREL evaluates the results of duplicate and spike analyses using "*Z* scores." A *Z* score is the number of standard deviations by which the QC result differs from its ideal value. The score is considered acceptable if its absolute value is not greater than 3.

The *Z* score for a spiked sample is computed by dividing the difference between the measured value and the target value by the combined standard uncertainty of the difference.

The *Z* score for a duplicate analysis is computed by dividing the difference between the two measured values by the combined standard uncertainty of the difference. When the precision of paired MS/MSD analyses is evaluated, the native sample activity is subtracted from each measured value and the net concentrations are then converted to total activities before the *Z* score is computed.

Each standard uncertainty used to compute a *Z* score includes an additional fixed term to represent sources of measurement error other than counting error. This additional term is not used in the evaluation of reagent blanks.

NAREL reports the "relative percent difference," or RPD, between duplicate results and the "percent recovery," or %R, for spiked analyses, but does not use these values for evaluation.

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

ANALYSIS SUMMARY

Analysis Procedure: NAREL U-EICHROM
Title: Actinides (Uranium) by Extraction Chromatography

NAREL Sample #	QC Type	Preparation Procedure	Date Completed	Assay Batch #	QC Batch #
A7.06957W		N/A	10/30/2007	0011979P	0004712K
A7.06957W	DUP	N/A	10/30/2007	0011979P	0004712K
A7.06958X		N/A	10/30/2007	0011979P	0004712K
A7.06959Y		N/A	10/30/2007	0011979P	0004712K
A7.06960Q		N/A	10/30/2007	0011979P	0004712K
LCS-00529669A *	LCS	N/A	10/30/2007	0011979P	0004712K
RBK-00529668Z *	RBK	N/A	10/30/2007	0011979P	0004712K

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

PREPARATION METHOD(S) USED

Procedure ID	Title

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	A7.06957W	QC batch #:	0004712K
Matrix:	SOIL	Assay batch #:	0011979P
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	4.172e-01 GWET	Analysis procedure:	NAREL U-EICHROM
Dry/wet weight:	N/A	Analyst:	SPK
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 14:41	1000.0	AS33	DPG

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Date
U234	*	2.17e+00	4.0e-01	9.5e-02	PCI/GWET	10/29/2007
U235	*	9.77e-02	9.0e-02	9.4e-02	PCI/GWET	10/29/2007
U238	*	1.83e+00	3.6e-01	8.8e-02	PCI/GWET	10/29/2007

* An asterisk indicates a result that may be significantly under or overestimated

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	A7.06957W	QC batch #:	0004712K
Matrix:	SOIL	Assay batch #:	0011979P
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	2.951e-01 GWET	Analysis procedure:	NAREL U-EICHROM
Dry/wet weight:	N/A	Analyst:	SPK
Ash/dry weight:	N/A	QC type:	DUP
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 14:41	1000.0	AS34	DPG

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Date
U234	*	2.80e+00	4.6e-01	4.1e-02	PCI/GWET	10/29/2007
U235	*	1.36e-01	1.1e-01	9.9e-02	PCI/GWET	10/29/2007
U238	*	2.68e+00	4.5e-01	7.1e-02	PCI/GWET	10/29/2007

* An asterisk indicates a result that may be significantly under or overestimated

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	A7.06958X	QC batch #:	0004712K
Matrix:	SOIL	Assay batch #:	0011979P
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	3.017e-01 GWET	Analysis procedure:	NAREL U-EICHROM
Dry/wet weight:	N/A	Analyst:	SPK
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 14:41	1000.0	AS35	DPG

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Date
U234	*	2.47e+01	2.6e+00	9.6e-02	PCI/GWET	10/29/2007
U235	*	1.66e+00	4.0e-01	1.3e-01	PCI/GWET	10/29/2007
U238	*	2.06e+01	2.2e+00	8.2e-02	PCI/GWET	10/29/2007

* An asterisk indicates a result that may be significantly under or overestimated

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NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	A7.06959Y	QC batch #:	0004712K
Matrix:	SOIL	Assay batch #:	0011979P
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	2.575e-01 GWET	Analysis procedure:	NAREL U-EICHROM
Dry/wet weight:	N/A	Analyst:	SPK
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 14:41	1000.0	AS36	DPG

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Date
U234	*	1.81e+00	4.0e-01	1.6e-01	PCI/GWET	10/29/2007
U235	*	2.30e-01	1.5e-01	1.1e-01	PCI/GWET	10/29/2007
U238	*	2.02e+00	4.3e-01	1.1e-01	PCI/GWET	10/29/2007

* An asterisk indicates a result that may be significantly under or overestimated

U.S.ENVIRONMENTAL PROTECTION AGENCY
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SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	A7.06960Q	QC batch #:	0004712K
Matrix:	SOIL	Assay batch #:	0011979P
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	2.737e-01 GWET	Analysis procedure:	NAREL U-EICHROM
Dry/wet weight:	N/A	Analyst:	SPK
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 14:41	1000.0	AS37	DPG

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Date
U234	*	1.77e+01	1.5e+00	5.0e-02	PCI/GWET	10/29/2007
U235	*	1.17e+00	2.4e-01	5.9e-02	PCI/GWET	10/29/2007
U238	*	1.46e+01	1.2e+00	5.0e-02	PCI/GWET	10/29/2007

* An asterisk indicates a result that may be significantly under or overestimated

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SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	LCS-00529669A	QC batch #:	0004712K
Matrix:	N/A	Assay batch #:	0011979P
Sample type:	N/A	Prep procedure:	N/A
Amount analyzed:	1.000e+00 SAMP	Analysis procedure:	NAREL U-EICHROM
Dry/wet weight:	N/A	Analyst:	SPK
Ash/dry weight:	N/A	QC type:	LCS
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 14:41	1000.0	AS38	DPG

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Date
U234	1.86e+00	2.5e-01	3.4e-02	PCI	10/29/2007
U235	1.04e-01	5.0e-02	1.6e-02	PCI	10/29/2007
U238	2.02e+00	2.6e-01	2.4e-02	PCI	10/29/2007

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SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	RBK-00529668Z	QC batch #:	0004712K
Matrix:	N/A	Assay batch #:	0011979P
Sample type:	N/A	Prep procedure:	N/A
Amount analyzed:	1.000e+00 SAMP	Analysis procedure:	NAREL U-EICHROM
Dry/wet weight:	N/A	Analyst:	SPK
Ash/dry weight:	N/A	QC type:	RBK
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 14:41	1000.0	AS40	DPG

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Date
U234	2.09e-02	2.2e-02	2.3e-02	PCI	10/29/2007
U235	8.92e-03	1.9e-02	2.8e-02	PCI	10/29/2007
U238	-1.49e-03	1.4e-02	3.3e-02	PCI	10/29/2007

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SDG 0700040

QC BATCH SUMMARY

QC batch #: 0004712K
Preparation procedure: N/A
Analysis procedure: NAREL U-EICHROM

NAREL Sample #	QC Type	Yield (%)	± 2 σ Uncertainty (%)	Analyst
A7.06957W		71.88 %	7.24 %	SPK
A7.06957W	DUP	86.25 %	7.87 %	SPK
A7.06958X		85.03 %	8.21 %	SPK
A7.06959Y		87.68 %	8.42 %	SPK
A7.06960Q		193.97 %	15.29 %	SPK
LCS-00529669A *	LCS	91.40 %	8.78 %	SPK
RBK-00529668Z *	RBK	90.42 %	8.57 %	SPK

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

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SDG 0700040

ASSAY BATCH SUMMARY

SAMPLES ANALYZED

NAREL Sample #	QC Type	Aliquot Size	Completion Date	Assay Batch
A7.06957W		4.17e-01 GWET	10/30/2007	0011979P
A7.06957W	DUP	2.95e-01 GWET	10/30/2007	0011979P
A7.06958X		3.02e-01 GWET	10/30/2007	0011979P
A7.06959Y		2.58e-01 GWET	10/30/2007	0011979P
A7.06960Q		2.74e-01 GWET	10/30/2007	0011979P
LCS-00529669A *	LCS	1.00e+00 SAMP	10/30/2007	0011979P
RBK-00529668Z *	RBK	1.00e+00 SAMP	10/30/2007	0011979P

Samples marked with an asterisk (*) are not in SDG #0700040 but were analyzed with it for QC purposes

U.S. ENVIRONMENTAL PROTECTION AGENCY
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SDG #0700040

DETECTOR REPORT

The following were used for samples in the SDG

AS33	10/29/2007 14:41	00529649W	A7.06957W
AS34	10/29/2007 14:41	00529667Y	A7.06957W
AS35	10/29/2007 14:41	00529652Q	A7.06958X
AS36	10/29/2007 14:41	00529657W	A7.06959Y
AS37	10/29/2007 14:41	00529661R	A7.06960Q

The following were used for other samples in the QC batches

AS38	10/29/2007 14:41	00529669A
AS40	10/29/2007 14:41	00529668Z

Data Package Checklist

(Initials do not signify approval)

Reviewer	Initials	Date
MASB QA Officer		
NAREL QA Manager		
MASB Chief		

Project: SALMON RIVER URANIUM SDG Number: 0700040

Date due: _____ Analysis: NAREL GAM-01

Type of Package: ☐ Data Summary Package ☐ Complete Package

Y	N	N/A		Comments
☐	☐	☐	All samples in the SDG are reported	
☐	☐	☐	All results are the ones intended	
☐	☐	☐	Printed results match the raw data	
☐	☐	☐	Error report forms are attached	
☐	☐	☐	SDG Form is attached, front and back	
☐	☐	☐	Analyst's checklist is attached	
☐	☐	☐	Original prep batch forms are attached	
☐	☐	☐	All supporting data sheets are attached	
☐	☐	☐	All raw data sheets appear to be correct	
☐	☐	☐	All handwritten notes are initialed and dated	
☐	☐	☐	Package is arranged correctly	
☐	☐	☐	Package appears to be complete	

Were holding times met? ☐Yes ☐No ☐N/A

Were all QC results acceptable? ☐Yes ☐No

Are there any exceptions to report? ☐Yes ☐No

Prepared by: _____

QAO Review

Y	N	N/A	
☐	☐	☐	All QC failures are noted
☐	☐	☐	Raw data look reasonable
☐	☐	☐	All exceptions have been noted

Comments: _____

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY
GAMMA ANALYSES

REPORT OF SAMPLE DELIVERY GROUP #0700040

Project: Salmon River Uranium, North Fork, ID
Analysis Procedure: Gamma Spectrometry
Report ID: 0700040-GAMMA
Report Type: Original
Date Reported: 10/30/2007
Total Pages in Report:

SAMPLES

NAREL Sample #	Client Sample ID	Type	Matrix	Date Collected	Date Received
A7.06957W	SR-WP1-01	SAM	SOIL	10/26/2007	10/29/2007
A7.06958X	SR-WM-04	SAM	SOIL	10/26/2007	10/29/2007
A7.06959Y	SR-WP2-02	SAM	SOIL	10/26/2007	10/29/2007
A7.06960Q	SP-WP3-03	SAM	SOIL	10/26/2007	10/29/2007

EXCEPTIONS

1. Packaging and Shipping - NAREL sample A7.06957 container 2 was damaged en route to NAREL. The glass container was broken, and the sample was leaking into the bag surrounding it which was not damaged.
2. Documentation - No problems were observed.
3. Sample Preparation - No problems were encountered.
4. Analysis – QC and reviews are not complete. Please consider the results in this package **DRAFT**.
5. Holding Times - All holding times were met.

QUALITY CONTROL

1. QC samples – QC not complete.
2. Instruments - Response and background checks for all instruments used in these analyses met NAREL acceptance criteria.

CERTIFICATION

I certify that this data report complies with the terms and conditions of the Quality Assurance Project Plan, except as noted above. Release of the data contained in this report has been authorized by the Chief of the Monitoring and Analytical Services Branch and the NAREL Quality Assurance Manager, or their designees, as verified by the following signatures.

Mary F. Wisdom — Date
Quality Assurance Manager, NAREL

John G. Griggs, Ph.D. — Date
Chief, Monitoring and Analytical Services Branch

GENERAL INFORMATION

SAMPLE TYPES

BLD	Blind sample
FBK	Field blank
SAM	Normal sample

ANALYSIS QC TYPES

ANA	Normal analysis
DUP	Laboratory duplicate
LCS	Laboratory control sample (blank spike)
MS	Matrix spike
MSD	Matrix spike duplicate
RBK	Method blank

QUALITY INDICATORS

RPD	Relative Percent Difference
%R	Percent Recovery
Z	Number of standard deviations by which a QC measurement differs from the expected value

EVALUATION OF QC ANALYSES

A method blank result is considered unacceptable if it is more than 3 standard deviations below zero or more than 3 standard deviations above a predetermined upper control limit. For some analyses NAREL has set the upper control limit at zero. For others the control limit is a small positive number.

NAREL evaluates the results of duplicate and spike analyses using "*Z* scores." A *Z* score is the number of standard deviations by which the QC result differs from its ideal value. The score is considered acceptable if its absolute value is not greater than 3.

The *Z* score for a spiked sample is computed by dividing the difference between the measured value and the target value by the combined standard uncertainty of the difference.

The *Z* score for a duplicate analysis is computed by dividing the difference between the two measured values by the combined standard uncertainty of the difference. When the precision of paired MS/MSD analyses is evaluated, the native sample activity is subtracted from each measured value and the net concentrations are then converted to total activities before the *Z* score is computed.

Each standard uncertainty used to compute a *Z* score includes an additional fixed term to represent sources of measurement error other than counting error. This additional term is not used in the evaluation of reagent blanks.

NAREL reports the "relative percent difference," or RPD, between duplicate results and the "percent recovery," or %R, for spiked analyses, but does not use these values for evaluation.

GENERAL INFORMATION (CONTINUED)

GAMMA ANALYSIS

The reporting format lists the gamma emitters in alphabetical order. The activity and 2-sigma uncertainty for radionuclides measured by gamma spectroscopy are reported only if the nuclide is detected. Nuclides that are not detected do not appear in the report, with the exception of Ba-140, Co-60, Cs-137, I-131, K-40, Ra-226 and Ra-228. If one of these seven nuclides is undetected, NAREL reports it as "Not Detected" or "ND", and provides a sample-specific estimate of the MDC.

Due to potential spectral interferences and other possible problems associated with the determination of the activity of certain radionuclides, the activities for Bi-214, Pb-214, Th-234, Pa-234m, Ra-226, Th-231, and U-235 are subject to greater possible uncertainty than other commonly reported radionuclides. It should be noted that this potential uncertainty is not included in the two-sigma counting uncertainty which is reported with each activity. Although in this report we do provide the calculated activities for these radionuclides, we recommend that the results be used only as a qualitative means of indicating the presence of these radionuclides and not as a quantitative measure of their concentration. The results for these nuclides are not used in the evaluation of quality control samples. Furthermore, because of mutual interference between Ra-226 and U-235, NAREL's gamma analysis software tends to overestimate the amounts of these nuclides whenever both are present in a sample. Lower estimates for Ra-226 activities can be obtained from the reported activities of its decay products, Pb-214 and Bi-214, which are likely to be somewhat less than the Ra-226 activity because of the potential escape of radon gas.

NAREL's gamma spectroscopy software corrects activities and MDCs for decay between collection and analysis, but only up to a limit of ten half-lives. So, if the decay time for a sample is more than ten half-lives of a radionuclide, that nuclide will almost always be undetected and the reported MDC will be meaningless. This is usually a problem only for short-lived radionuclides, such as I-131 and Ba-140, when there is a long delay between collection and analysis.

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

ANALYSIS SUMMARY

Analysis Procedure: NAREL GAM-01
Title: Gamma Spectrometry

NAREL Sample #	QC Type	Preparation Procedure	Date Completed	Assay Batch #	QC Batch #
A7.06957W		N/A	10/30/2007	0011981H	0004714M
A7.06958X		N/A	10/30/2007	0011981H	0004714M
A7.06959Y		N/A	10/30/2007	0011981H	0004714M
A7.06960Q		N/A	10/30/2007	0011981H	0004714M

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

PREPARATION METHOD(S) USED

Procedure ID	Title

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	A7.06957W	QC batch #:	0004714M
Matrix:	SOIL	Assay batch #:	0011981H
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	7.230e+01 GWET	Analysis procedure:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	RCL
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 15:16	1000.0	GE09	RCL

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Date
Ba140		ND		1.1e+00	PCI/GWET	10/26/2007
Bi212		2.57e+02	3.0e+01		PCI/GWET	10/26/2007
Bi214	*	3.17e+00	4.5e-01		PCI/GWET	10/26/2007
Co60		ND		2.5e-01	PCI/GWET	10/26/2007
Cs137		ND		3.1e-01	PCI/GWET	10/26/2007
I131		ND		3.0e-01	PCI/GWET	10/26/2007
K40		3.88e+01	4.7e+00		PCI/GWET	10/26/2007
Pb212		2.39e+02	2.7e+01		PCI/GWET	10/26/2007
Pb214	*	3.29e+00	4.4e-01		PCI/GWET	10/26/2007
Ra223	*	4.77e+01	5.5e+00		PCI/GWET	10/26/2007
Ra224		2.48e+02	2.9e+01		PCI/GWET	10/26/2007
Ra226	*	1.19e+01	4.3e+00		PCI/GWET	10/26/2007
Ra228		2.53e+02	2.9e+01		PCI/GWET	10/26/2007
Rn220		2.77e+02	9.0e+01		PCI/GWET	10/26/2007
Th227		2.00e+00	1.4e+00		PCI/GWET	10/26/2007
Th228		2.55e+02	4.8e+01		PCI/GWET	10/26/2007
Tl208		7.59e+01	8.7e+00		PCI/GWET	10/26/2007
U235	*	7.76e-01	2.7e-01		PCI/GWET	10/26/2007

* An asterisk indicates a result that may be significantly under or overestimated

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NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	A7.06958X	QC batch #:	0004714M
Matrix:	SOIL	Assay batch #:	0011981H
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	7.270e+01 GWET	Analysis procedure:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	RCL
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 15:16	1000.0	GE10	RCL

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Date
Bi212		9.95e+00	2.1e+00		PCI/GWET	10/26/2007
Bi214	*	3.24e+02	3.7e+01		PCI/GWET	10/26/2007
Co60		ND		3.5e-01	PCI/GWET	10/26/2007
Cs137		1.63e-01	1.1e-01		PCI/GWET	10/26/2007
I131		ND		3.0e-01	PCI/GWET	10/26/2007
K40		4.25e+00	1.5e+00		PCI/GWET	10/26/2007
Pb211		3.36e+01	5.1e+00		PCI/GWET	10/26/2007
Pb212		8.28e+00	9.8e-01		PCI/GWET	10/26/2007
Pb214	*	3.59e+02	4.1e+01		PCI/GWET	10/26/2007
Ra223	*	3.16e+01	3.7e+00		PCI/GWET	10/26/2007
Ra224		5.00e+00	3.6e+00		PCI/GWET	10/26/2007
Ra226	*	7.30e+02	8.4e+01		PCI/GWET	10/26/2007
Ra228		8.46e+00	1.1e+00		PCI/GWET	10/26/2007
Rn219		3.06e+01	3.6e+00		PCI/GWET	10/26/2007
Th227		2.17e+01	2.6e+00		PCI/GWET	10/26/2007
Tl208		2.46e+00	3.1e-01		PCI/GWET	10/26/2007
U235	*	4.35e+01	5.0e+00		PCI/GWET	10/26/2007

* An asterisk indicates a result that may be significantly under or overestimated

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NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	A7.06959Y	QC batch #:	0004714M
Matrix:	SOIL	Assay batch #:	0011981H
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	9.160e+01 GWET	Analysis procedure:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	RCL
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 15:16	1000.0	GE11	RCL

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Date
Ba140		ND		3.5e-01	PCI/GWET	10/26/2007
Bi212		5.26e+01	6.1e+00		PCI/GWET	10/26/2007
Bi214	*	2.63e+00	3.2e-01		PCI/GWET	10/26/2007
Co60		ND		8.6e-02	PCI/GWET	10/26/2007
Cs137		ND		1.1e-01	PCI/GWET	10/26/2007
I131		ND		1.0e-01	PCI/GWET	10/26/2007
K40		8.77e+00	1.1e+00		PCI/GWET	10/26/2007
Pb212		4.85e+01	5.6e+00		PCI/GWET	10/26/2007
Pb214	*	2.80e+00	3.3e-01		PCI/GWET	10/26/2007
Ra223	*	9.25e+00	1.1e+00		PCI/GWET	10/26/2007
Ra224		4.74e+01	5.5e+00		PCI/GWET	10/26/2007
Ra226	*	5.95e+00	1.1e+00		PCI/GWET	10/26/2007
Ra228		5.10e+01	5.9e+00		PCI/GWET	10/26/2007
Rn220		6.83e+01	3.1e+01		PCI/GWET	10/26/2007
Th228		5.01e+01	1.5e+01		PCI/GWET	10/26/2007
Tl208		1.51e+01	1.7e+00		PCI/GWET	10/26/2007
U235	*	3.76e-01	7.1e-02		PCI/GWET	10/26/2007

* An asterisk indicates a result that may be significantly under or overestimated

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	A7.06960Q	QC batch #:	0004714M
Matrix:	SOIL	Assay batch #:	0011981H
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	7.160e+01 GWET	Analysis procedure:	NAREL GAM-01
Dry/wet weight:	N/A	Analyst:	RCL
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 15:16	1000.0	GE12	RCL

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Date
Ba140		ND		2.1e+00	PCI/GWET	10/26/2007
Bi212		4.14e+02	4.8e+01		PCI/GWET	10/26/2007
Bi214	*	1.72e+01	2.0e+00		PCI/GWET	10/26/2007
Co60		ND		4.2e-01	PCI/GWET	10/26/2007
Cs137		ND		5.9e-01	PCI/GWET	10/26/2007
I131		ND		6.0e-01	PCI/GWET	10/26/2007
K40		ND		3.7e+00	PCI/GWET	10/26/2007
Pb212		3.77e+02	4.3e+01		PCI/GWET	10/26/2007
Pb214	*	1.82e+01	2.1e+00		PCI/GWET	10/26/2007
Ra224		3.83e+02	4.4e+01		PCI/GWET	10/26/2007
Ra226	*	7.00e+01	9.6e+00		PCI/GWET	10/26/2007
Ra228		4.13e+02	4.7e+01		PCI/GWET	10/26/2007
Rn220		4.42e+02	1.7e+02		PCI/GWET	10/26/2007
Th234	*	1.59e+01	3.9e+00		PCI/GWET	10/26/2007
Tl208		1.23e+02	1.4e+01		PCI/GWET	10/26/2007
U235	*	4.43e+00	6.1e-01		PCI/GWET	10/26/2007

* An asterisk indicates a result that may be significantly under or overestimated

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG 0700040

QC BATCH SUMMARY

QC batch #: 0004714M
Preparation procedure: N/A
Analysis procedure: NAREL GAM-01

NAREL Sample #	QC Type	Yield (%)	± 2 σ Uncertainty (%)	Analyst
A7.06957W		N/A		RCL
A7.06958X		N/A		RCL
A7.06959Y		N/A		RCL
A7.06960Q		N/A		RCL

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG 0700040

ASSAY BATCH SUMMARY

SAMPLES ANALYZED

NAREL Sample #	QC Type	Aliquot Size	Completion Date	Assay Batch
A7.06957W		7.23e+01 GWET	10/30/2007	0011981H
A7.06958X		7.27e+01 GWET	10/30/2007	0011981H
A7.06959Y		9.16e+01 GWET	10/30/2007	0011981H
A7.06960Q		7.16e+01 GWET	10/30/2007	0011981H

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG 0700040

ERROR REPORT

QC batch 0004714M contains incomplete analyses
QC batch 0004714M is incomplete

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

DETECTOR REPORT

The following were used for samples in the SDG

GE09	10/29/2007 15:16	00529646T	A7.06957W
GE10	10/29/2007 15:16	00529650N	A7.06958X
GE11	10/29/2007 15:16	00529655U	A7.06959Y
GE12	10/29/2007 15:16	00529659Y	A7.06960Q

The following were used for other samples in the QC batches

None found

Data Package Checklist

(Initials do not signify approval)

Reviewer	Initials	Date
MASB QA Officer	____	_____
NAREL QA Manager	____	_____
MASB Chief	____	_____

Project: ANACONDA REMOVAL SDG Number: 0700025

Date due: _____ Analysis: NAREL GAM-01

Type of Package: ☐ Data Summary Package ☐ Complete Package

Y	N	N/A		Comments
☐	☐	☐	All samples in the SDG are reported	
☐	☐	☐	All results are the ones intended	
☐	☐	☐	Printed results match the raw data	
☐	☐	☐	Error report forms are attached	
☐	☐	☐	SDG Form is attached, front and back	
☐	☐	☐	Analyst's checklist is attached	
☐	☐	☐	Original prep batch forms are attached	
☐	☐	☐	All supporting data sheets are attached	
☐	☐	☐	All raw data sheets appear to be correct	
☐	☐	☐	All handwritten notes are initialed and dated	
☐	☐	☐	Package is arranged correctly	
☐	☐	☐	Package appears to be complete	

Were holding times met? ☐Yes ☐No ☐N/A

Were all QC results acceptable? ☐Yes ☐No

Are there any exceptions to report? ☐Yes ☐No

Prepared by: _____

QAO Review

Y	N	N/A	
☐	☐	☐	All QC failures are noted
☐	☐	☐	Raw data look reasonable
☐	☐	☐	All exceptions have been noted

Comments: _____

Data Package Checklist

(Initials do not signify approval)

Reviewer	Initials	Date
MASB QA Officer		
NAREL QA Manager		
MASB Chief		

Project: SALMON RIVER URANIUM SDG Number: 0700040

Date due: _____ Analysis: NAREL TH-EICHROM

Type of Package: ☐ Data Summary Package ☐ Complete Package

Y	N	N/A		Comments
☐	☐	☐	All samples in the SDG are reported	
☐	☐	☐	All results are the ones intended	
☐	☐	☐	Printed results match the raw data	
☐	☐	☐	Error report forms are attached	
☐	☐	☐	SDG Form is attached, front and back	
☐	☐	☐	Analyst's checklist is attached	
☐	☐	☐	Original prep batch forms are attached	
☐	☐	☐	All supporting data sheets are attached	
☐	☐	☐	All raw data sheets appear to be correct	
☐	☐	☐	All handwritten notes are initialed and dated	
☐	☐	☐	Package is arranged correctly	
☐	☐	☐	Package appears to be complete	

Were holding times met? ☐Yes ☐No ☐N/A

Were all QC results acceptable? ☐Yes ☐No

Are there any exceptions to report? ☐Yes ☐No

Prepared by: _____

QAO Review

Y	N	N/A	
☐	☐	☐	All QC failures are noted
☐	☐	☐	Raw data look reasonable
☐	☐	☐	All exceptions have been noted

Comments: _____

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY
TH ANALYSES

REPORT OF SAMPLE DELIVERY GROUP #0700040

Project:	Salmon River Uranium, North Fork, ID
Analysis Procedure:	Actinides (Thorium) by Extraction Chromatography
Report ID:	0700040-TH
Report Type:	Original
Date Reported:	10/30/2007
Total Pages in Report:	17

SAMPLES

NAREL Sample #	Client Sample ID	Type	Matrix	Date Collected	Date Received
A7.06957W	SR-WP1-01	SAM	SOIL	10/26/2007	10/29/2007
A7.06958X	SR-WM-04	SAM	SOIL	10/26/2007	10/29/2007
A7.06959Y	SR-WP2-02	SAM	SOIL	10/26/2007	10/29/2007
A7.06960Q	SP-WP3-03	SAM	SOIL	10/26/2007	10/29/2007

EXCEPTIONS

1. Packaging and Shipping – NAREL sample A7.06957 container 2 was damaged en route to NAREL. The glass container was broken, and the sample was leaking into the bag surrounding it which was not damaged.
2. Documentation - No problems were observed.
3. Sample Preparation - In order to analyze the samples as quickly as possible, shortcuts in preparation were taken which is outside NAREL SOPs. The client was aware that analysts would be operating outside the SOPs and agreed to obtain results quickly.
4. Analysis – All results in this SDG are estimations of the concentrations of thorium isotopes present in the samples. The thorium yields for all samples except A7.06959 are low because complete separation of the thorium and uranium was not achieved. This data package has not been through the NAREL review process, and therefore should be considered **DRAFT**.
5. Holding Times - All holding times were met.

QUALITY CONTROL

1. QC samples - All QC analysis results met NAREL acceptance criteria except the duplicate result for Th-228 and the method blank result for Th-232.
2. Yields - All chemical yields were below NAREL acceptance criteria except the yields for NAREL sample A7.06959, the LCS, and the method blank which were within the acceptance criteria.
3. Instruments - Response and background checks for all instruments used in these analyses met NAREL acceptance criteria.

CERTIFICATION

I certify that this data report complies with the terms and conditions of the Quality Assurance Project Plan, except as noted above. Release of the data contained in this report has been authorized by the Chief of the Monitoring and Analytical Services Branch and the NAREL Quality Assurance Manager, or their designees, as verified by the following signatures.

Mary F. Wisdom Quality Assurance Manager, NAREL	Date
John G. Griggs, Ph.D. Chief, Monitoring and Analytical Services Branch	Date

GENERAL INFORMATION

SAMPLE TYPES

BLD	Blind sample
FBK	Field blank
SAM	Normal sample

ANALYSIS QC TYPES

ANA	Normal analysis
DUP	Laboratory duplicate
LCS	Laboratory control sample (blank spike)
MS	Matrix spike
MSD	Matrix spike duplicate
RBK	Method blank

QUALITY INDICATORS

RPD	Relative Percent Difference
%R	Percent Recovery
Z	Number of standard deviations by which a QC measurement differs from the expected value

EVALUATION OF QC ANALYSES

A method blank result is considered unacceptable if it is more than 3 standard deviations below zero or more than 3 standard deviations above a predetermined upper control limit. For some analyses NAREL has set the upper control limit at zero. For others the control limit is a small positive number.

NAREL evaluates the results of duplicate and spike analyses using "*Z* scores." A *Z* score is the number of standard deviations by which the QC result differs from its ideal value. The score is considered acceptable if its absolute value is not greater than 3.

The *Z* score for a spiked sample is computed by dividing the difference between the measured value and the target value by the combined standard uncertainty of the difference.

The *Z* score for a duplicate analysis is computed by dividing the difference between the two measured values by the combined standard uncertainty of the difference. When the precision of paired MS/MSD analyses is evaluated, the native sample activity is subtracted from each measured value and the net concentrations are then converted to total activities before the *Z* score is computed.

Each standard uncertainty used to compute a *Z* score includes an additional fixed term to represent sources of measurement error other than counting error. This additional term is not used in the evaluation of reagent blanks.

NAREL reports the "relative percent difference," or RPD, between duplicate results and the "percent recovery," or %R, for spiked analyses, but does not use these values for evaluation.

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

ANALYSIS SUMMARY

Analysis Procedure: NAREL TH-EICHROM
Title: Actinides (Thorium) by Extraction Chromatography

NAREL Sample #	QC Type	Preparation Procedure	Date Completed	Assay Batch #	QC Batch #
A7.06957W		N/A	10/30/2007	0011978N	0004711J
A7.06957W	DUP	N/A	10/30/2007	0011978N	0004711J
A7.06958X		N/A	10/30/2007	0011978N	0004711J
A7.06959Y		N/A	10/30/2007	0011978N	0004711J
A7.06960Q		N/A	10/30/2007	0011978N	0004711J
LCS-00529666X *	LCS	N/A	10/30/2007	0011978N	0004711J
RBK-00529665W *	RBK	N/A	10/30/2007	0011978N	0004711J

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

PREPARATION METHOD(S) USED

Procedure ID	Title

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	A7.06957W	QC batch #:	0004711J
Matrix:	SOIL	Assay batch #:	0011978N
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	4.172e-01 GWET	Analysis procedure:	NAREL TH-EICHROM
Dry/wet weight:	N/A	Analyst:	SPK
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 15:20	1000.0	AS01	DPG

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Date
Th227	*	2.72e+00	1.0e+00	8.1e-01	PCI/GWET	10/29/2007
Th228	*	1.83e+02	1.4e+01	7.6e-01	PCI/GWET	10/29/2007
Th230	*	4.58e+00	9.1e-01	3.2e-01	PCI/GWET	10/29/2007
Th232	*	1.45e+02	1.1e+01	2.0e-01	PCI/GWET	10/29/2007

* An asterisk indicates a result that may be significantly under or overestimated

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	A7.06957W	QC batch #:	0004711J
Matrix:	SOIL	Assay batch #:	0011978N
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	2.951e-01 GWET	Analysis procedure:	NAREL TH-EICHROM
Dry/wet weight:	N/A	Analyst:	SPK
Ash/dry weight:	N/A	QC type:	DUP
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 15:20	1000.0	AS03	DPG

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Date
Th227	*	2.04e+00	9.1e-01	8.4e-01	PCI/GWET	10/29/2007
Th228	*	1.50e+02	1.1e+01	7.7e-01	PCI/GWET	10/29/2007
Th230	*	5.92e+00	1.1e+00	2.9e-01	PCI/GWET	10/29/2007
Th232	*	1.34e+02	1.0e+01	2.2e-01	PCI/GWET	10/29/2007

* An asterisk indicates a result that may be significantly under or overestimated

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	A7.06958X	QC batch #:	0004711J
Matrix:	SOIL	Assay batch #:	0011978N
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	3.017e-01 GWET	Analysis procedure:	NAREL TH-EICHROM
Dry/wet weight:	N/A	Analyst:	SPK
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 15:20	1000.0	AS04	DPG

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Date
Th227	*	2.92e+01	4.9e+00	9.3e-01	PCI/GWET	10/29/2007
Th228	*	6.85e+00	1.5e+00	1.2e+00	PCI/GWET	10/29/2007
Th230	*	5.71e+02	4.3e+01	4.1e-01	PCI/GWET	10/29/2007
Th232	*	6.89e+00	1.4e+00	4.4e-01	PCI/GWET	10/29/2007

* An asterisk indicates a result that may be significantly under or overestimated

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	A7.06959Y	QC batch #:	0004711J
Matrix:	SOIL	Assay batch #:	0011978N
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	2.575e-01 GWET	Analysis procedure:	NAREL TH-EICHROM
Dry/wet weight:	N/A	Analyst:	SPK
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 15:20	1000.0	AS05	DPG

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Date
Th227	*	1.14e-01	2.3e-01	3.8e-01	PCI/GWET	10/29/2007
Th228	*	1.53e+01	1.5e+00	3.9e-01	PCI/GWET	10/29/2007
Th230	*	2.13e+00	4.8e-01	1.8e-01	PCI/GWET	10/29/2007
Th232	*	1.50e+01	1.5e+00	1.8e-01	PCI/GWET	10/29/2007

* An asterisk indicates a result that may be significantly under or overestimated

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	A7.06960Q	QC batch #:	0004711J
Matrix:	SOIL	Assay batch #:	0011978N
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	2.737e-01 GWET	Analysis procedure:	NAREL TH-EICHROM
Dry/wet weight:	N/A	Analyst:	SPK
Ash/dry weight:	N/A	QC type:	ANA
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 15:20	1000.0	AS06	DPG

ANALYTICAL RESULTS

Analyte		Activity	± 2 σ Uncertainty	MDC	Unit	Date
Th227	*	6.07e+00	1.8e+00	8.1e-01	PCI/GWET	10/29/2007
Th228	*	3.74e+02	2.8e+01	1.1e+00	PCI/GWET	10/29/2007
Th230	*	4.22e+01	4.4e+00	4.8e-01	PCI/GWET	10/29/2007
Th232	*	3.48e+02	2.6e+01	3.7e-01	PCI/GWET	10/29/2007

* An asterisk indicates a result that may be significantly under or overestimated

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	LCS-00529666X	QC batch #:	0004711J
Matrix:	N/A	Assay batch #:	0011978N
Sample type:	N/A	Prep procedure:	N/A
Amount analyzed:	1.000e+00 SAMP	Analysis procedure:	NAREL TH-EICHROM
Dry/wet weight:	N/A	Analyst:	SPK
Ash/dry weight:	N/A	QC type:	LCS
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 15:20	1000.0	AS07	DPG

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Date
Th227	-1.14e-02	3.5e-02	8.5e-02	PCI	10/29/2007
Th228	3.22e-02	5.0e-02	8.4e-02	PCI	10/29/2007
Th230	2.35e+00	2.5e-01	4.3e-02	PCI	10/29/2007
Th232	-4.82e-03	1.6e-02	4.0e-02	PCI	10/29/2007

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NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

SAMPLE ANALYSIS REPORT

Sample #:	RBK-00529665W	QC batch #:	0004711J
Matrix:	N/A	Assay batch #:	0011978N
Sample type:	N/A	Prep procedure:	N/A
Amount analyzed:	1.000e+00 SAMP	Analysis procedure:	NAREL TH-EICHROM
Dry/wet weight:	N/A	Analyst:	SPK
Ash/dry weight:	N/A	QC type:	RBK
Sample description:	N/A		
Comment:	N/A		

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/2007 15:20	1000.0	AS21	DPG

ANALYTICAL RESULTS

Analyte	Activity	± 2 σ Uncertainty	MDC	Unit	Date
Th227	1.40e-02	4.9e-02	9.1e-02	PCI	10/29/2007
Th228	1.44e-01	6.8e-02	8.2e-02	PCI	10/29/2007
Th230	6.28e-03	2.3e-02	4.3e-02	PCI	10/29/2007
Th232	1.33e-01	5.2e-02	2.9e-02	PCI	10/29/2007

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG 0700040

QC BATCH SUMMARY

QC batch #: 0004711J
Preparation procedure: N/A
Analysis procedure: NAREL TH-EICHROM

NAREL Sample #	QC Type	Yield (%)	± 2 σ Uncertainty (%)	Analyst
A7.06957W		23.72 %	1.25 %	SPK
A7.06957W	DUP	34.41 %	1.57 %	SPK
A7.06958X		24.11 %	1.24 %	SPK
A7.06959Y		68.56 %	2.52 %	SPK
A7.06960Q		27.58 %	1.35 %	SPK
LCS-00529666X *	LCS	90.28 %	3.11 %	SPK
RBK-00529665W *	RBK	85.91 %	2.97 %	SPK

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

U.S.ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG 0700040

ASSAY BATCH SUMMARY

SAMPLES ANALYZED

NAREL Sample #	QC Type	Aliquot Size	Completion Date	Assay Batch
A7.06957W		4.17e-01 GWET	10/30/2007	0011978N
A7.06957W	DUP	2.95e-01 GWET	10/30/2007	0011978N
A7.06958X		3.02e-01 GWET	10/30/2007	0011978N
A7.06959Y		2.58e-01 GWET	10/30/2007	0011978N
A7.06960Q		2.74e-01 GWET	10/30/2007	0011978N
LCS-00529666X *	LCS	1.00e+00 SAMP	10/30/2007	0011978N
RBK-00529665W *	RBK	1.00e+00 SAMP	10/30/2007	0011978N

Samples marked with an asterisk (*) are not in SDG #0700040 but were analyzed with it for QC purposes

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY

SDG #0700040

DETECTOR REPORT

The following were used for samples in the SDG

AS01	10/29/2007 15:20	00529648V	A7.06957W
AS03	10/29/2007 15:20	00529670T	A7.06957W
AS04	10/29/2007 15:20	00529653R	A7.06958X
AS05	10/29/2007 15:20	00529656V	A7.06959Y
AS06	10/29/2007 15:20	00529660Q	A7.06960Q

The following were used for other samples in the QC batches

AS07	10/29/2007 15:20	00529666X
AS21	10/29/2007 15:20	00529665W

ATTACHMENT D
TREATED MATERIAL SAMPLE RESULTS

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

SPOKANE, WA 11922 E. 1ST AVENUE
SPOKANE VALLEY, WA 99206
ph: (509) 924.9200 fax: (509) 924.9290

June 03, 2008

Bryan Chernick
Environmental Quality Management, Inc.
6825 216th St. SW, Suite J
Lynnwood, WA 98036

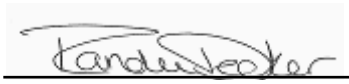
RE: Salmon River Uranium Development

Enclosed are the results of analyses for samples received by the laboratory on 05/29/08 13:55. The following list is a summary of the Work Orders contained in this report, generated on 06/03/08 14:54.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
SRE0126	Salmon River Uranium Develc	[none]

TestAmerica Spokane



Randee Decker, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

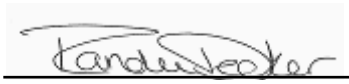
SPOKANE, WA 11922 E. 1ST AVENUE
SPOKANE VALLEY, WA 99206-5302
ph: (509) 924.9200 fax: (509) 924.9290

Environmental Quality Management, Inc.	Project Name:	**Salmon River Uranium Development**	
6825 216th St. SW, Suite J	Project Number:	[none]	Report Created:
Lynnwood, WA 98036	Project Manager:	Bryan Chernick	06/03/08 14:54

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
052808TH	SRE0126-01	Soil	05/28/08 10:40	05/29/08 13:55

TestAmerica Spokane



Randee Decker, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

SPOKANE, WA 11922 E. 1ST AVENUE
SPOKANE VALLEY, WA 99206-5302
ph: (509) 924.9200 fax: (509) 924.9290

Environmental Quality Management, Inc.	Project Name:	**Salmon River Uranium Development**	
6825 216th St. SW, Suite J	Project Number:	[none]	Report Created:
Lynnwood, WA 98036	Project Manager:	Bryan Chernick	06/03/08 14:54

TCLP Metals by EPA 1311/6010/7000 Series Methods

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRE0126-01 (052808TH)		**Soil**				**Sampled: 05/28/08 10:40**				
Lead	EPA 6010B	**0.0375**	-----	0.0300	mg/l	1x	8060006	06/03/08 07:03	06/03/08 10:08	

TestAmerica Spokane

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Randee Decker, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

SPOKANE, WA 11922 E. 1ST AVENUE
SPOKANE VALLEY, WA 99206-5302
ph: (509) 924.9200 fax: (509) 924.9290

Environmental Quality Management, Inc.	Project Name:	**Salmon River Uranium Development**	
6825 216th St. SW, Suite J	Project Number:	[none]	Report Created:
Lynnwood, WA 98036	Project Manager:	Bryan Chernick	06/03/08 14:54

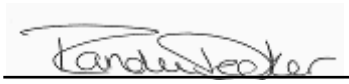
TCLP Metals by EPA 1311/6010/7000 Series Methods - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8060006 **Water Preparation Method: Metals**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8060006-BLK1)								**Extracted: 06/03/08 07:03**						
Lead	EPA 6010B	ND	---	0.0300	mg/l	1x	--	--	--	--	--	--	06/03/08 09:47	
LCS (8060006-BS1)								**Extracted: 06/03/08 07:03**						
Lead	EPA 6010B	1.05	---	0.0300	mg/l	1x	--	1.00	105%	(80-120)	--	--	06/03/08 09:42	
Duplicate (8060006-DUP1)					**QC Source: SRE0111-01**			**Extracted: 06/03/08 07:03**						
Lead	EPA 6010B	ND	---	0.0300	mg/l	1x	0.0306	--	--	--	24.8%	(20)	06/03/08 10:20	R4
Matrix Spike (8060006-MS1)					**QC Source: SRE0111-01**			**Extracted: 06/03/08 07:03**						
Lead	EPA 6010B	1.03	---	0.0300	mg/l	1x	0.0306	1.00	99.9%	(75-125)	--	--	06/03/08 10:27	
Matrix Spike Dup (8060006-MSD1)					**QC Source: SRE0111-01**			**Extracted: 06/03/08 07:03**						
Lead	EPA 6010B	1.04	---	0.0300	mg/l	1x	0.0306	1.00	101%	(75-125)	1.19%	(20)	06/03/08 10:46	

TestAmerica Spokane



Randee Decker, Project Manager

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SPOKANE, WA 11922 E. 1ST AVENUE
SPOKANE VALLEY, WA 99206-5302
ph: (509) 924.9200 fax: (509) 924.9290

Environmental Quality Management, Inc.	Project Name:	**Salmon River Uranium Development**	
6825 216th St. SW, Suite J	Project Number:	[none]	Report Created:
Lynnwood, WA 98036	Project Manager:	Bryan Chernick	06/03/08 14:54

Notes and Definitions

Report Specific Notes:

R4 - Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.

Laboratory Reporting Conventions:

DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA - Not Reported / Not Available

dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

wet - Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.

RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

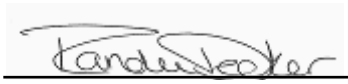
MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting Limits - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

Electronic Signature - Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy.* Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Spokane



Randee Decker, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Environmental Quality Management, Inc.
6825 216TH ST. SW #J
Lynnwood, WA 98036
Phone: (425) 673-2900 Fax: (425) 673-7511

CHAIN OF CUSTODY
Request for Laboratory Services

Lab No. SRE0126

Turnaround Request (business days)

STD	3	2	1
	X		

Client:	U.S. EPA REGION X
Project:	SALMON RIVER URANIUM DEVELOPMEN
Contact:	BRYAN CHERNICK
Phone No.:	206-799-3508
Fax No.:	425-673-7511
Email:	bchernick@phoinixgroup.net

Lab #	Sample ID	Date	Time	Matrix	# of containers	TCLP for Lead	Analyses Requested
1	052808TH	5/28/07	1040	Soil	1	X	
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

	Printed Name	Signature		
Relinquished By	Bryan Chernick			
Received By	Eric Sutton			
Relinquished By				
Received By	R Hanson		5/29/08	1355
Relinquished By				
Received By				

Please provide Rush turnaround. E-mail results to bchernick@phoinixgroup.net

1.8°C

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

PROJECT NO. SALMON RIVER U

Environmental Quality Mgmt

Lot #: F8E140199

Bryan Chernick

Environmental Quality Mgt Inc
6825 216th Street SW, Suite J
Lynnwood, WA 98036

TESTAMERICA LABORATORIES, INC.

Sherryl Adam
Project Manager

May 16, 2008

Case Narrative
LOT NUMBER: **F8E140199**

This report contains the analytical results for the three samples received under chain of custody by TestAmerica St. Louis on May 12, 2008. These samples are associated with your Environmental Quality Mgmt project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances
Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Inductively Coupled Plasma – (ICP) Metals
Batch: 8136296 - TCLP
1) The MS (MSD) recovery for lead is outside the established QC limits. The said analyte concentration in the original sample is greater than four times the amount spiked, making percent recovery information ineffective. Method performance is demonstrated by acceptable LCS recovery.

2) The MS/MSD RPD for chromium is not within method acceptance criteria. MS/MSD recoveries are within QC limits demonstrating good extraction performance in the sample matrix.

Batch: 8136295 - TCLP
1) The MS (MSD) recovery for cadmium is outside the established QC limits. A multi-element spike was used. All elements except cadmium were within control indicating a matirx interference isolated to cadmium within the sample. Method performance is demonstrated by acceptable LCS recovery.

Affected Samples:
F8E140199 (2): 050708TH

METHODS SUMMARY

F8E140199

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 1311/3010
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A	SW846 1311/7470
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

F8E140199

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
KM6L9	001	050708U	05/07/08	17:15
KM6MF	002	050708TH	05/07/08	17:30
KM6MH	003	050708BKT	05/07/08	17:45

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Environmental Quality Mgt., Inc.

Client Sample ID: 050708U

TCLP Metals

Lot-Sample #...: F8E140199-001 **Matrix.....:** SOLID
Date Sampled...: 05/07/08 17:15 **Date Received..:** 05/12/08
Leach Date.....: 05/14/08 **Leach Batch #..:** P813514

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 8136114						
Mercury	ND	1.0	ug/L	SW846 7470A	05/15/08	KM6L91AK
		Dilution Factor: 1		Analysis Time..: 11:58		
Prep Batch #...: 8136295						
Arsenic	**65.6 B**	**500**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM6L91AC**
		Dilution Factor: 1		Analysis Time..: 11:28		
Barium	**3410 J**	**125**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM6L91AD**
		Dilution Factor: 1		Analysis Time..: 11:28		
Chromium	ND	62.5	ug/L	SW846 6010B	05/15-05/16/08	KM6L91AE
		Dilution Factor: 1		Analysis Time..: 11:28		
Lead	ND	250	ug/L	SW846 6010B	05/15-05/16/08	KM6L91AF
		Dilution Factor: 1		Analysis Time..: 11:28		
Cadmium	**34.0**	**12.5**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM6L91AG**
		Dilution Factor: 1		Analysis Time..: 11:28		
Selenium	**9.7 B**	**500**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM6L91AH**
		Dilution Factor: 1		Analysis Time..: 11:28		
Silver	ND	25.0	ug/L	SW846 6010B	05/15-05/16/08	KM6L91AJ
		Dilution Factor: 1		Analysis Time..: 11:28		

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Environmental Quality Mgt., Inc.

Client Sample ID: 050708U

General Chemistry

Lot-Sample #...: F8E140199-001 **Work Order #...:** KM6L9 **Matrix.....:** SOLID
Date Sampled...: 05/07/08 17:15 **Date Received..:** 05/12/08
% Moisture.....: 11

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**11.2**	**0.10**	**%**	**MCAWW 160.3 MOD**	**05/15-05/16/08**	**8136054**

Dilution Factor: 1 Analysis Time..: 00:00

Environmental Quality Mgt., Inc.

Client Sample ID: 050708TH

TCLP Metals

Lot-Sample #...: F8E140199-002 **Matrix.....:** SOLID
Date Sampled...: 05/07/08 17:30 **Date Received..:** 05/12/08
Leach Date.....: 05/14/08 **Leach Batch #..:** P813513

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 8136115						
Mercury	ND	1.0	ug/L	SW846 7470A	05/15/08	KM6MF1AK
		Dilution Factor: 1		Analysis Time..: 12:17		
Prep Batch #...: 8136296						
Arsenic	**93.0 B**	**500**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM6MF1AC**
		Dilution Factor: 1		Analysis Time..: 10:28		
Barium	**146 J**	**125**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM6MF1AD**
		Dilution Factor: 1		Analysis Time..: 10:28		
Chromium	ND	62.5	ug/L	SW846 6010B	05/15-05/16/08	KM6MF1AE
		Dilution Factor: 1		Analysis Time..: 10:28		
Lead	**6500**	**250**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM6MF1AF**
		Dilution Factor: 1		Analysis Time..: 10:28		
Cadmium	**14.1 J**	**12.5**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM6MF1AG**
		Dilution Factor: 1		Analysis Time..: 10:28		
Selenium	ND	500	ug/L	SW846 6010B	05/15-05/16/08	KM6MF1AH
		Dilution Factor: 1		Analysis Time..: 10:28		
Silver	ND	25.0	ug/L	SW846 6010B	05/15-05/16/08	KM6MF1AJ
		Dilution Factor: 1		Analysis Time..: 10:28		

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Environmental Quality Mgt., Inc.

Client Sample ID: 050708TH

General Chemistry

Lot-Sample #...: F8E140199-002 **Work Order #...:** KM6MF **Matrix.....:** SOLID
Date Sampled...: 05/07/08 17:30 **Date Received..:** 05/12/08
% Moisture.....: 5.1

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**5.1**	**0.10**	**%**	**MCAWW 160.3 MOD**	**05/15-05/16/08**	**8136054**

Dilution Factor: 1 Analysis Time..: 00:00

Environmental Quality Mgt., Inc.

Client Sample ID: 050708BKT

TCLP Metals

Lot-Sample #...: F8E140199-003 **Matrix.....:** SOLID
Date Sampled...: 05/07/08 17:45 **Date Received..:** 05/12/08
Leach Date.....: 05/14/08 **Leach Batch #..:** P813514

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 8136114						
Mercury	ND	1.0	ug/L	SW846 7470A	05/15/08	KM6MH1AK
		Dilution Factor: 1		Analysis Time..: 12:06		
Prep Batch #...: 8136295						
Arsenic	**718**	**500**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM6MH1AC**
		Dilution Factor: 1		Analysis Time..: 11:54		
Barium	**1120 J**	**125**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM6MH1AD**
		Dilution Factor: 1		Analysis Time..: 11:54		
Chromium	**24.1 B**	**62.5**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM6MH1AE**
		Dilution Factor: 1		Analysis Time..: 11:54		
Lead	ND	250	ug/L	SW846 6010B	05/15-05/16/08	KM6MH1AF
		Dilution Factor: 1		Analysis Time..: 11:54		
Cadmium	**8.4 B**	**12.5**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM6MH1AG**
		Dilution Factor: 1		Analysis Time..: 11:54		
Selenium	**74.4 B**	**500**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM6MH1AH**
		Dilution Factor: 1		Analysis Time..: 11:54		
Silver	ND	25.0	ug/L	SW846 6010B	05/15-05/16/08	KM6MH1AJ
		Dilution Factor: 1		Analysis Time..: 11:54		

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

Environmental Quality Mgt., Inc.

Client Sample ID: 050708BKT

General Chemistry

Lot-Sample #...: F8E140199-003 **Work Order #...:** KM6MH **Matrix.....:** SOLID
Date Sampled...: 05/07/08 17:45 **Date Received..:** 05/12/08
% Moisture.....: 1.8

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**1.8**	**0.10**	**%**	**MCAWW 160.3 MOD**	**05/15-05/16/08**	**8136054**

Dilution Factor: 1 Analysis Time..: 00:00

METHOD BLANK REPORT

TCLP Metals

Client Lot #...: F8E140199 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F8E140000-363 **Prep Batch #...:** 8136296						
Leach Date.....: 05/14/08 **Leach Batch #..:** P813513						
Arsenic	ND	500	ug/L	SW846 6010B	05/15-05/16/08	KM7AX1AA
		Dilution Factor: 1				
		Analysis Time..: 10:09				
MB Lot-Sample #: F8E140000-363 **Prep Batch #...:** 8136115						
Leach Date.....: 05/14/08 **Leach Batch #..:** P813513						
Mercury	ND	1.0	ug/L	SW846 7470A	05/15/08	KM7AX1AJ
		Dilution Factor: 1				
		Analysis Time..: 12:08				
MB Lot-Sample #: F8E140000-363 **Prep Batch #...:** 8136296						
Leach Date.....: 05/14/08 **Leach Batch #..:** P813513						
Barium	**6.2 B**	**125**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM7AX1AC**
		Dilution Factor: 1				
		Analysis Time..: 10:09				
Chromium	ND	62.5	ug/L	SW846 6010B	05/15-05/16/08	KM7AX1AD
		Dilution Factor: 1				
		Analysis Time..: 10:09				
Lead	ND	250	ug/L	SW846 6010B	05/15-05/16/08	KM7AX1AE
		Dilution Factor: 1				
		Analysis Time..: 10:09				
Cadmium	**1.3 B**	**12.5**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM7AX1AF**
		Dilution Factor: 1				
		Analysis Time..: 10:09				
Selenium	ND	500	ug/L	SW846 6010B	05/15-05/16/08	KM7AX1AG
		Dilution Factor: 1				
		Analysis Time..: 10:09				
Silver	ND	25.0	ug/L	SW846 6010B	05/15-05/16/08	KM7AX1AH
		Dilution Factor: 1				
		Analysis Time..: 10:09				

(Continued on next page)

METHOD BLANK REPORT

TCLP Metals

Client Lot #...: F8E140199 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F8E140000-364 **Prep Batch #...:** 8136295						
Leach Date.....: 05/14/08 **Leach Batch #..:** P813514						
Arsenic	ND	500	ug/L	SW846 6010B	05/15-05/16/08	KM7A31AA
		Dilution Factor: 1				
		Analysis Time..: 10:56				
MB Lot-Sample #: F8E140000-364 **Prep Batch #...:** 8136114						
Leach Date.....: 05/14/08 **Leach Batch #..:** P813514						
Mercury	ND	1.0	ug/L	SW846 7470A	05/15/08	KM7A31AJ
		Dilution Factor: 1				
		Analysis Time..: 11:52				
MB Lot-Sample #: F8E140000-364 **Prep Batch #...:** 8136295						
Leach Date.....: 05/14/08 **Leach Batch #..:** P813514						
Barium	**7.2 B**	**125**	**ug/L**	**SW846 6010B**	**05/15-05/16/08**	**KM7A31AC**
		Dilution Factor: 1				
		Analysis Time..: 10:56				
Chromium	ND	62.5	ug/L	SW846 6010B	05/15-05/16/08	KM7A31AD
		Dilution Factor: 1				
		Analysis Time..: 10:56				
Lead	ND	250	ug/L	SW846 6010B	05/15-05/16/08	KM7A31AE
		Dilution Factor: 1				
		Analysis Time..: 10:56				
Cadmium	ND	12.5	ug/L	SW846 6010B	05/15-05/16/08	KM7A31AF
		Dilution Factor: 1				
		Analysis Time..: 10:56				
Selenium	ND	500	ug/L	SW846 6010B	05/15-05/16/08	KM7A31AG
		Dilution Factor: 1				
		Analysis Time..: 10:56				
Silver	ND	25.0	ug/L	SW846 6010B	05/15-05/16/08	KM7A31AH
		Dilution Factor: 1				
		Analysis Time..: 10:56				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F8E140199 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F8E150000-114 **Prep Batch #...:** 8136114					
Mercury	102	(80 - 120)	SW846 7470A	05/15/08	KM8GQ1AA
		Dilution Factor: 1	Analysis Time..: 11:54		
LCS Lot-Sample#: F8E150000-115 **Prep Batch #...:** 8136115					
Mercury	99	(80 - 120)	SW846 7470A	05/15/08	KM8GR1AA
		Dilution Factor: 1	Analysis Time..: 12:10		
LCS Lot-Sample#: F8E150000-295 **Prep Batch #...:** 8136295					
Arsenic	95	(80 - 120)	SW846 6010B	05/15-05/16/08	KM80M1AA
		Dilution Factor: 1	Analysis Time..: 11:02		
Barium	94	(80 - 120)	SW846 6010B	05/15-05/16/08	KM80M1AC
		Dilution Factor: 1	Analysis Time..: 11:02		
Chromium	91	(80 - 120)	SW846 6010B	05/15-05/16/08	KM80M1AD
		Dilution Factor: 1	Analysis Time..: 11:02		
Lead	92	(80 - 120)	SW846 6010B	05/15-05/16/08	KM80M1AE
		Dilution Factor: 1	Analysis Time..: 11:02		
Cadmium	95	(80 - 120)	SW846 6010B	05/15-05/16/08	KM80M1AF
		Dilution Factor: 1	Analysis Time..: 11:02		
Selenium	93	(80 - 120)	SW846 6010B	05/15-05/16/08	KM80M1AG
		Dilution Factor: 1	Analysis Time..: 11:02		
Silver	91	(80 - 120)	SW846 6010B	05/15-05/16/08	KM80M1AH
		Dilution Factor: 1	Analysis Time..: 11:02		
LCS Lot-Sample#: F8E150000-296 **Prep Batch #...:** 8136296					
Arsenic	98	(80 - 120)	SW846 6010B	05/15-05/16/08	KM80V1AA
		Dilution Factor: 1	Analysis Time..: 10:16		
Barium	97	(80 - 120)	SW846 6010B	05/15-05/16/08	KM80V1AC
		Dilution Factor: 1	Analysis Time..: 10:16		
Chromium	96	(80 - 120)	SW846 6010B	05/15-05/16/08	KM80V1AD
		Dilution Factor: 1	Analysis Time..: 10:16		

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F8E140199 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Lead	99	(80 - 120)	SW846 6010B	05/15-05/16/08	KM80V1AE
		Dilution Factor: 1	Analysis Time..: 10:16		
Cadmium	100	(80 - 120)	SW846 6010B	05/15-05/16/08	KM80V1AF
		Dilution Factor: 1	Analysis Time..: 10:16		
Selenium	99	(80 - 120)	SW846 6010B	05/15-05/16/08	KM80V1AG
		Dilution Factor: 1	Analysis Time..: 10:16		
Silver	98	(80 - 120)	SW846 6010B	05/15-05/16/08	KM80V1AH
		Dilution Factor: 1	Analysis Time..: 10:16		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F8E140199 **Matrix.....:** SOLID
Date Sampled...: 05/07/08 17:15 **Date Received..:** 05/12/08

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F8E140199-001 **Prep Batch #...:** 8136114							
Leach Date.....: 05/14/08 **Leach Batch #..:** P813514							
Mercury	97	(70 - 130)			SW846 7470A	05/15/08	KM6L91AM
	96	(70 - 130)	1.0	(0-20)	SW846 7470A	05/15/08	KM6L91AN
		Dilution Factor: 1					
		Analysis Time..: 12:00					
MS Lot-Sample #: F8E140199-001 **Prep Batch #...:** 8136295							
Leach Date.....: 05/14/08 **Leach Batch #..:** P813514							
Arsenic	94	(75 - 125)			SW846 6010B	05/15-05/16/08	KM6L91AP
	90	(75 - 125)	4.1	(0-20)	SW846 6010B	05/15-05/16/08	KM6L91AQ
		Dilution Factor: 1					
		Analysis Time..: 11:41					
Barium	115	(75 - 125)			SW846 6010B	05/15-05/16/08	KM6L91AR
	97	(75 - 125)	7.2	(0-20)	SW846 6010B	05/15-05/16/08	KM6L91AT
		Dilution Factor: 1					
		Analysis Time..: 11:41					
Chromium	91	(75 - 125)			SW846 6010B	05/15-05/16/08	KM6L91AU
	89	(75 - 125)	2.8	(0-20)	SW846 6010B	05/15-05/16/08	KM6L91AV
		Dilution Factor: 1					
		Analysis Time..: 11:41					
Lead	89	(75 - 125)			SW846 6010B	05/15-05/16/08	KM6L91AW
	86	(75 - 125)	3.5	(0-20)	SW846 6010B	05/15-05/16/08	KM6L91AX
		Dilution Factor: 1					
		Analysis Time..: 11:41					
Cadmium	56 N	(75 - 125)			SW846 6010B	05/15-05/16/08	KM6L91A0
	301 N,*	(75 - 125)	105	(0-20)	SW846 6010B	05/15-05/16/08	KM6L91A1
		Dilution Factor: 1					
		Analysis Time..: 11:41					
Selenium	91	(75 - 125)			SW846 6010B	05/15-05/16/08	KM6L91A2
	88	(75 - 125)	3.4	(0-20)	SW846 6010B	05/15-05/16/08	KM6L91A3
		Dilution Factor: 1					
		Analysis Time..: 11:41					

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F8E140199 **Matrix.....:** SOLID
Date Sampled...: 05/07/08 17:15 **Date Received..:** 05/12/08

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	93	(75 - 125)			SW846 6010B	05/15-05/16/08	KM6L91A4
	90	(75 - 125)	3.1	(0-20)	SW846 6010B	05/15-05/16/08	KM6L91A5

Dilution Factor: 1
Analysis Time..: 11:41

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

* Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F8E140199 **Matrix.....:** SOLID
Date Sampled...: 05/07/08 17:30 **Date Received..:** 05/12/08

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F8E140199-002 **Prep Batch #...:** 8136115							
Leach Date.....: 05/14/08 **Leach Batch #..:** P813513							
Mercury	101	(70 - 130)			SW846 7470A	05/15/08	KM6MF1AM
	105	(70 - 130)	3.7	(0-20)	SW846 7470A	05/15/08	KM6MF1AN
		Dilution Factor: 1					
		Analysis Time..: 12:19					
MS Lot-Sample #: F8E140199-002 **Prep Batch #...:** 8136296							
Leach Date.....: 05/14/08 **Leach Batch #..:** P813513							
Arsenic	89	(75 - 125)			SW846 6010B	05/15-05/16/08	KM6MF1AP
	89	(75 - 125)	0.70	(0-20)	SW846 6010B	05/15-05/16/08	KM6MF1AQ
		Dilution Factor: 1					
		Analysis Time..: 10:43					
Barium	90	(75 - 125)			SW846 6010B	05/15-05/16/08	KM6MF1AR
	89	(75 - 125)	1.5	(0-20)	SW846 6010B	05/15-05/16/08	KM6MF1AT
		Dilution Factor: 1					
		Analysis Time..: 10:43					
Chromium	109	(75 - 125)			SW846 6010B	05/15-05/16/08	KM6MF1AU
	87 *	(75 - 125)	23	(0-20)	SW846 6010B	05/15-05/16/08	KM6MF1AV
		Dilution Factor: 1					
		Analysis Time..: 10:43					
Lead	0.0 N	(75 - 125)			SW846 6010B	05/15-05/16/08	KM6MF1AW
	0.0 N	(75 - 125)	0.0	(0-20)	SW846 6010B	05/15-05/16/08	KM6MF1AX
		Dilution Factor: 1					
		Analysis Time..: 10:43					
Cadmium	87	(75 - 125)			SW846 6010B	05/15-05/16/08	KM6MF1A0
	84	(75 - 125)	2.6	(0-20)	SW846 6010B	05/15-05/16/08	KM6MF1A1
		Dilution Factor: 1					
		Analysis Time..: 10:43					
Selenium	85	(75 - 125)			SW846 6010B	05/15-05/16/08	KM6MF1A2
	87	(75 - 125)	2.4	(0-20)	SW846 6010B	05/15-05/16/08	KM6MF1A3
		Dilution Factor: 1					
		Analysis Time..: 10:43					

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F8E140199 **Matrix.....:** SOLID
Date Sampled...: 05/07/08 17:30 **Date Received..:** 05/12/08

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	85	(75 - 125)			SW846 6010B	05/15-05/16/08	KM6MF1A4
	87	(75 - 125)	3.0	(0-20)	SW846 6010B	05/15-05/16/08	KM6MF1A5

Dilution Factor: 1
Analysis Time..: 10:43

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

* Relative percent difference (RPD) is outside stated control limits.

N Spiked analyte recovery is outside stated control limits.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F8E140199 **Work Order #...:** KM604-SMP KM604-DUP **Matrix.....:** SOLID

Date Sampled...: 05/13/08 13:00 **Date Received..:** 05/14/08

% Moisture.....: 9.7

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture						SD Lot-Sample #: F8E140231-004		
	9.7	9.6	%	0.93	(0-30)	MCAWW 160.3 MOD	05/15-05/16/08	8136054

Dilution Factor: 1 Analysis Time..: 00:00

CHAIN OF CUSTODY
Request for Laboratory Services

Environmental Quality Management, Inc.
6825 216TH ST. SW #J
Lynnwood, WA 98036
Phone: (425) 673-2900 Fax: (425) 673-7511

Lab No. _____

Turnaround Request (business days)

STD	3	2	1
	X		

Client:	U.S. EPA REGION X
Project:	SALMON RIVER URANIUM DEVELOPMEN
Contact:	BRYAN CHERNICK
Phone No.:	206-799-3508
Fax No.:	425-673-7511
Email:	bchernick@phoinixgroup.net

Lab #	Sample ID	Date	Time	Matrix	# of containers	TCLP for RCRA 8 Metals	Analyses Requested										
1	050708U	5/7/2008	1715	soil	2	X											
2	050708TH	5/7/2008	1730	soil	2	X											
3	050708BKT	5/7/2008	1745	soil	2	X											
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	

	Printed Name	Signature		
Relinquished By	Bryan Chernick		5/9/08	1325
Received By		TA-SEA	5/9/08	1325
Relinquished By				
Received By	Sue Wilson		05.12.08	0915
Relinquished By				
Received By				

Please provide Rush turnaround. E-mail results to bchernick@phoinixgroup.net

COC No. _____

CHAIN OF CUSTODY
Request for Laboratory Services

Environmental Quality Management, Inc.
6825 216TH ST. SW #J
Lynnwood, WA 98036
Phone: (425) 673-2900 Fax: (425) 673-7511

wr 3095

Lab No. _____

Turnaround Request (business days)

STD	3	2	1
	X		

Client:	U.S. EPA REGION X
Project:	SALMON RIVER URANIUM DEVELOPMEN
Contact:	BRYAN CHERNICK
Phone No.:	206-799-3508
Fax No.:	425-673-7511
Email:	bchernick@phoinixgroup.net

Lab #	Sample ID	Date	Time	Matrix	# of containers	TCLP for RCRA 8 Metals	Analyses Requested										
1	050708U	5/7/2008	1715	soil	2	X											
2	050708TH	5/7/2008	1730	soil	2	X											
3	050708BKT	5/7/2008	1745	soil	2	X											
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	

	Printed Name	Signature			
Relinquished By	Bryan Chernick		5/9/08		Please provide Rush turnaround. E-mail results to bchernick@phoinixgroup.net
Received By	Sue Nilson		05.12.08	0915	
Relinquished By					
Received By					
Relinquished By					
Received By					

COC No. _____

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Lot #(s): - 3095 - F8E140199

Condition Upon Receipt Form

Client: TA WA
Quote No: 79542
COC/RFA No: N/A
Initiated By:
Date: 05.12.08
Time: 0915

Shipping Information

Shipper Name: FedX
Shipping # (s):*
1. 7926 9773 9454
2.
3.
4.
5.
6.
7.
8.
9.
10.

Multiple Packages Y (N)
Sample Temperature (s):**
1. ambient
2.
3.
4.
5.
6.
7.
8.
9.
10.

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid or Rad tests- Liquid or Solids

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	Y (N)	Are there custody seals present on the cooler?	8.	Y (N)	Are there custody seals present on bottles?
2.	Y N (N/A)	Do custody seals on cooler appear to be tampered with?	9.	Y N (N/A)	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y N (N/A)	Was sample received with proper pH[1]? (If not, make note below)
4.	(Y) N	Sample received with Chain of Custody?	11.	Y N	If N/A- Was pH taken by original TestAmerica lab?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N	Was Internal COC/Workshare received?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX and soils.

Notes:
soils for TCLP metals should be cooled to 2°-6° ok to log per SA

Corrective Action:
☐ Client Contact Name: Informed by:
☐ Sample(s) processed "as is"
☐ Sample(s) on hold until: If released, notify:
Project Management Review: Sheryl A Adam Date: 5-16-08

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

SPOKANE, WA 11922 E. 1ST AVENUE
SPOKANE VALLEY, WA 99206
ph: (509) 924.9200 fax: (509) 924.9290

June 03, 2008

Bryan Chernick
Environmental Quality Management, Inc.
6825 216th St. SW, Suite J
Lynnwood, WA 98036

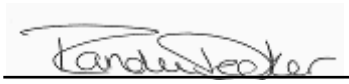
RE: Salmon River Uranium Development

Enclosed are the results of analyses for samples received by the laboratory on 05/29/08 13:55. The following list is a summary of the Work Orders contained in this report, generated on 06/03/08 14:54.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
SRE0126	Salmon River Uranium Develc	[none]

TestAmerica Spokane



Randee Decker, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

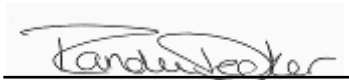
SPOKANE, WA 11922 E. 1ST AVENUE
SPOKANE VALLEY, WA 99206-5302
ph: (509) 924.9200 fax: (509) 924.9290

Environmental Quality Management, Inc.	Project Name:	**Salmon River Uranium Development**	
6825 216th St. SW, Suite J	Project Number:	[none]	Report Created:
Lynnwood, WA 98036	Project Manager:	Bryan Chernick	06/03/08 14:54

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
052808TH	SRE0126-01	Soil	05/28/08 10:40	05/29/08 13:55

TestAmerica Spokane



Randee Decker, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

SPOKANE, WA 11922 E. 1ST AVENUE
SPOKANE VALLEY, WA 99206-5302
ph: (509) 924.9200 fax: (509) 924.9290

Environmental Quality Management, Inc.	Project Name:	**Salmon River Uranium Development**	
6825 216th St. SW, Suite J	Project Number:	[none]	Report Created:
Lynnwood, WA 98036	Project Manager:	Bryan Chernick	06/03/08 14:54

TCLP Metals by EPA 1311/6010/7000 Series Methods

TestAmerica Spokane

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
SRE0126-01 (052808TH)		**Soil**				**Sampled: 05/28/08 10:40**				
Lead	EPA 6010B	**0.0375**	-----	0.0300	mg/l	1x	8060006	06/03/08 07:03	06/03/08 10:08	

TestAmerica Spokane

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Randee Decker, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

SPOKANE, WA 11922 E. 1ST AVENUE
SPOKANE VALLEY, WA 99206-5302
ph: (509) 924.9200 fax: (509) 924.9290

Environmental Quality Management, Inc.	Project Name:	**Salmon River Uranium Development**	
6825 216th St. SW, Suite J	Project Number:	[none]	Report Created:
Lynnwood, WA 98036	Project Manager:	Bryan Chernick	06/03/08 14:54

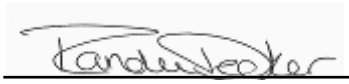
TCLP Metals by EPA 1311/6010/7000 Series Methods - Laboratory Quality Control Results

TestAmerica Spokane

QC Batch: 8060006 **Water Preparation Method: Metals**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (8060006-BLK1)								**Extracted: 06/03/08 07:03**						
Lead	EPA 6010B	ND	---	0.0300	mg/l	1x	--	--	--	--	--	--	06/03/08 09:47	
LCS (8060006-BS1)								**Extracted: 06/03/08 07:03**						
Lead	EPA 6010B	1.05	---	0.0300	mg/l	1x	--	1.00	105%	(80-120)	--	--	06/03/08 09:42	
Duplicate (8060006-DUP1)					**QC Source: SRE0111-01**			**Extracted: 06/03/08 07:03**						
Lead	EPA 6010B	ND	---	0.0300	mg/l	1x	0.0306	--	--	--	24.8%	(20)	06/03/08 10:20	R4
Matrix Spike (8060006-MS1)					**QC Source: SRE0111-01**			**Extracted: 06/03/08 07:03**						
Lead	EPA 6010B	1.03	---	0.0300	mg/l	1x	0.0306	1.00	99.9%	(75-125)	--	--	06/03/08 10:27	
Matrix Spike Dup (8060006-MSD1)					**QC Source: SRE0111-01**			**Extracted: 06/03/08 07:03**						
Lead	EPA 6010B	1.04	---	0.0300	mg/l	1x	0.0306	1.00	101%	(75-125)	1.19%	(20)	06/03/08 10:46	

TestAmerica Spokane



Randee Decker, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

SPOKANE, WA 11922 E. 1ST AVENUE
SPOKANE VALLEY, WA 99206-5302
ph: (509) 924.9200 fax: (509) 924.9290

Environmental Quality Management, Inc.	Project Name:	**Salmon River Uranium Development**	
6825 216th St. SW, Suite J	Project Number:	[none]	Report Created:
Lynnwood, WA 98036	Project Manager:	Bryan Chernick	06/03/08 14:54

Notes and Definitions

Report Specific Notes:

R4 - Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.

Laboratory Reporting Conventions:

DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.

ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).

NR/NA - Not Reported / Not Available

dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.

wet - Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.

RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).

MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

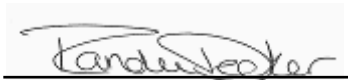
MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting Limits - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

Electronic Signature - Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy.* Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Spokane



Randee Decker, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Environmental Quality Management, Inc.
6825 216TH ST. SW #J
Lynnwood, WA 98036
Phone: (425) 673-2900 Fax: (425) 673-7511

CHAIN OF CUSTODY
Request for Laboratory Services

Lab No. SRE0126

Turnaround Request (business days)

STD	3	2	1
	X		

Client:	U.S. EPA REGION X
Project:	SALMON RIVER URANIUM DEVELOPMEN
Contact:	BRYAN CHERNICK
Phone No.:	206-799-3508
Fax No.:	425-673-7511
Email:	bchernick@phoinixgroup.net

Lab #	Sample ID	Date	Time	Matrix	# of containers	TCLP for Lead	Analyses Requested
1	052808TH	5/28/07	1040	Soil	1	X	
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

	Printed Name	Signature		
Relinquished By	Bryan Chernick			
Received By	Eric Sutton			
Relinquished By				
Received By	R Hanson		5/29/08	1355
Relinquished By				
Received By				

Please provide Rush turnaround. E-mail results to bchernick@phoinixgroup.net

1.8°C

ATTACHMENT E
WASTE DISPOSAL SUMMARY

Attachment E
Waste Disposal Summary
Salmon River Uranium Development Site
North Fork, Lemhi County, Idaho

Ship Date	Load No.	Waste Type	Quantity	Manifest No.	Transporter	Treatment / Disposal Facility
PHASE I						
10/31/2007	1	Hazardous Waste Solid (D004, D008), Aresenic and Lead Contaminated Soils	11.89 tons	350523	Steve Forler Trucking, Inc. P.O. Box 1479 Orting, Washington 98360	US Ecology Idaho, Inc. 20400 Lemley Road Grand View, Idaho 83624
11/1/2007	2	Hazardous Waste Liquid (D002), Sodium Hydroxide Solution	1,066 gals	350511	M.P. Environmental Services, Inc. 3400 Manor Street Bakersfield, California 93308	
11/1/2007	3	Radioactive material, Unprocessed ores	23.45 tons	SRUD-07-01	US Bulk Transport, Inc. 205 Pennbriar Drive Erie, PA 16509	
11/1/2007	4	Radioactive material, Unprocessed ores	23.27 tons	SRUD-07-02		
11/2/2007	5	Solid Waste – Non Hazardous Debris	5.2 yd3	00001	Steve Forler Trucking, Inc. P.O. Box 1479 Orting, Washington 98360	
PHASE II						
6/2/2008	1	Radioactive Material – Source Material, Bagged (super sacks) Soils	30 tons	01812	Savage Transportation, LLC P.O. Box 256538 Pasco, Washington 99302	US Ecology, Inc., NARM Services Hanford Reservation Richland, Washington 98352
6/2/2008	2	Radioactive Material – Source Material, Bagged (super sacks) Soils	30 tons	01813		
6/3/2008	3	Radioactive Material, Unprocessed Ores	22 tons	SRUD-08-1	US Bulk Transport 205 Pennbriar Drive Erie, Pennsylvania 16509	US Ecology Idaho, Inc. 20400 Lemley Road Grand View, Idaho 83624
6/3/2008	4	Radioactive Material, Unprocessed Ores	22 tons	SRUD-08-02	Steve Forler Trucking, Inc. P.O. Box 1479 Orting, Washington 98360	
6/3/2008	5	Radioactive Material – Source Material, Bagged (super sacks) Soils	23.5 tons	01814	Savage Transportation, LLC P.O. Box 256538 Pasco, Washington 99302	US Ecology, Inc., NARM Services Hanford Reservation Richland, Washington 98352

Key:

No. -- number
gals -- gallons
yd^3 -- cubic yards
NARM -- Naturally-Occurring and Accelerator-Produced Radioactive Materials