NM - 22

MONITORING REPORTS

[redacted] PROPOSAL

YEAR(S):

JAN. 31, 2001

PROJECT:
INVESTIGATION, CLEANUP AND ENVIRONMENTAL REMEDIATION
OF THE GOODWIN TREATING PLANT

Offeror Name:
BBC INTERNATIONAL – HOBBS, NM

Project Approach (75): RD. 1 70

Project Plan (150): 100

Experience:

Proposed project staff experence in oil field cleanup/remediation (150):
70

Offerors Organizational relevant experience (175): 125

References:

Corporate(75): _____

Staff (75): _____

Cost (300): _____

Turnkey: #241K

Itemized supplemental: _____

Total points : _____

EM
ROUND 1

PROPOSAL FOR

Investigation, Clean-up, and Environmental Remediation of the Goodwin Treating Plant

Lea County, New Mexico

PROPOSAL NUMBER: 10-521-07-04844

January 31, 2001

For the State of New Mexico
Energy, Minerals and Natural Resources Department
New Mexico Oil Conservation Division

Submitted by:

BBC International, Inc.
World-Wide Environmental Specialists
P.O. Box 805
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PROPOSAL SUMMARY

1.0 PROPOSAL SUMMARY

BBC International, Inc. has submitted this proposal as specified in the Request for Proposals for the investigation, clean up, and environmental remediation of the Goodwin Treating Plant in Lea County, New Mexico.

The services provided by BBC International, Inc. will include:

- Subsurface contamination investigation of the emergency overflow pit.
- Monitor well installation.
- Groundwater sampling and analysis of the monitoring well.
- NORM survey and lab analysis.
- NORM requirements for decontamination and disposal of NORM waste.
- Tank fluid removal and disposal.
- Tank solids removal and disposal.
- Tank and equipment removal.
- Near surface contamination investigation of areas around and underneath tank sumps, tanks, and treaters after their removal.
- Contaminated soil removal.
- Back filling excavations.
- Phase I Report.
- Phase II Report.
- Phase III Report.

All NORM related waste will be properly permitted and exported to Lotus, LLC's facility in Andrews County, Texas.

All non-NORM liquid and solid waste will be recycled or disposed of at Controlled Recovery, Inc.'s facility in Lea County, New Mexico.

All tanks, vessels, treaters, equipment, and debris on site will be removed and recycled or disposed of at an approved facility.

The estimated time frame to conduct the investigation and remediation services as requested in this Request for Proposal is approximately 56 working days, excluding the time awaiting analytical results.

BBC International, Inc. will be able to perform all the services and requirements of this Request for Proposal by the completion date of September 1, 2001.

2.0 RESPONSE TO TECHNICAL SPECIFICATIONS

BBC International, Inc. (BBC) is an environmental remediation and consulting firm with extensive experience in the oil and gas industry. BBC has been providing environmental services since 1983. Our corporate headquarters are in Hobbs, New Mexico with affiliate offices in Houston, Texas and Calgary, Alberta. BBC has performed a broad spectrum of investigation and remediation services for contaminated sites through out the world for the oil and gas industry.

BBC has conducted numerous site investigations of contaminated well sites, tank batteries, former tank battery sites, abandoned well sites, natural gas processing plants, compressor stations, oil reclamation facilities and other sites associated with the oil and gas industry. After completion of the site investigations, BBC has designed, prepared, and implemented remediation plans for the impacted sites.

BBC's personnel are highly experienced in all facets of the oil and gas industry with an emphasis on the environmental issues facing the industry. Please see **Appendix I** for additional information on the company, personnel qualifications, client references, and a sample list of projects undertaken.

BBC has the capabilities and experience to perform the services required by this RFP. We stride to make all of our projects efficient in design and implementation, expedient, and safe and secure. In **Appendix III**, there is a site Health, Safety, and Security Plan that will be used as a model to be tailored and followed by all personnel working on the Goodwin Treating Plant site.

The following information is our work plan to conduct the investigation and remedial services as required by this RFP.

1. Sub-surface Contamination Investigation

BBC will utilize a rotary air drilling rig owned by Eades Drilling of Hobbs to conduct the sub-surface investigation of the emergency overflow pit. All soil samples will be sent to the Trace Analysis, Inc. laboratory in Lubbock, Texas. All samples will be taken utilizing a split-spoon sampling tool. Samples will be taken at the 3-5 foot below ground surface (bgs) interval and every 10 foot interval until total depth of 60 feet is reached. All sample intervals will be screened using a photo ionization detector (PID). A sample from the 3-5 foot interval, the sample registering the highest PID reading, and the bottom hole sample will be sent to the lab for Total Petroleum Hydrocarbon (TPH) using EPA Method 8015M (GRO/DRO), BTEX using EPA Method 8260B and chlorides using EPA Method 300.0. Additionally, a sample from every 10 foot interval will be sent to the lab for chloride analysis. A drill log will be generated for the borehole. The drill cuttings generated will be disposed of at Controlled Recovery, Inc.'s (CRI) NMOCD approved disposal facility.

In the event that hydrocarbons are encountered at the water table, the NMOCD will be contacted immediately in accordance with NMOCD guidelines.

It is estimated that it will take one-half day to complete the borehole drilling and sampling.

All activities associated with the drilling of the borehole will be detailed in the Phase I Report.

2. Monitor Well Installation

BBC will complete the borehole as a ground water monitoring well. The well will be completed using 2 inch PVC well screen pipe. At least 15 feet of well screen will be placed across the water table interface with 5 feet of the well screen above the water table and 10 feet of the well screen will be below the water table. The well bore annulus will be gravel packed from the bottom of the hole to 2-3 feet above the top of the well screen. Then a 3 foot bentonite plug will be placed above the gravel pack. The remainder of the borehole will be grouted to surface with cement containing 3 – 5 percent bentonite. A concrete pad and locking well cover will be placed around the well PVC pipe. This well cover will be a surface mount cover.

The well will then be developed according to EPA procedures, then locked until purging and testing the next day.

It is estimated that it will take one-half day to complete the installation and development of the groundwater monitoring well.

All activities associated with the drilling of the borehole will be detailed in the Phase I Report.

3. Groundwater Sampling and Analysis

The morning after the installation and development of the monitoring well, the well be purged and sampled. A minimum of 3 well volumes will be purged and after pH, temperature, and conductivity have stabilized, the well will be sampled.

The well will be sampled using a bailer to collect samples for benzene, toluene, ethylbenzene, xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), total dissolved solids (TDS), major cations/anions, and New Mexico Water Quality Control Commission (WQCC) metals. The sample for the WQCC metals will be collected using a pressurized and filtered bailer. All purge and wastewater will be disposed of at CRI's facility.

All samples will be sent to Trace Analysis, Inc.'s laboratory in Lubbock, Texas and

analyzed using EPA approved methods and quality assurance/quality control (QA/QC) procedures. The well will then be locked.

In the event that hydrocarbons are detected in the analysis, the NMOCD will be contacted immediately in accordance with NMOCD guidelines.

It is estimated to take 1 day to perform the groundwater purging and sampling.

A Phase I report will be submitted detailing all site activities and laboratory results pertaining to the borehole and groundwater monitoring well.

4. NORM Survey and Lab Analysis

A survey for NORM will be conducted within all of the tanks and treaters on site as they are opened. BBC has contracted Norm Decon Services, LLC (NDS) of Midland, Texas to perform the NORM survey and sample collecting and analysis. NDS is a licensed NORM contractor in the State of Texas that has performed hundreds of NORM surveys in several states including New Mexico. NDS is able to perform this survey for the Goodwin Treating Plant under reciprocity from the New Mexico Environment Department (NMED) authorizing NDS to perform radiological work in New Mexico under their Texas Radioactive Materials License (No. L04917). Please see **Appendix II** for a copy of the Texas license, a reciprocity extension letter from the New Mexico Environment Department (NMED), NDS's sample references and personnel qualifications, and a corporate brochure describing their capabilities and services.

NDS personnel will survey the tanks as they are opened using instrumentation such as a Ludlum Model 3 with a 44-2 Probe and a Ludlum Model 2, Geiger Mueller "Pancake Probe". If field readings over 50 micro roentgens per hours (uR/hr) (0.5 uSv/hr) are obtained, a sample representative of the scale or sludge will be obtained and sent for analysis for Radium 226. If samples are taken, they will be sent to the American Radiation Services, Inc. (ARS) laboratory in Baton Rouge, Louisiana. The test results of any samples submitted for Radium 226 testing exceed 30 picocuries per gram will no longer be considered exempt waste and will be disposed of as NORM waste according to NMED regulations. The NMOCD will be contacted as soon as the test results are received by BBC and NDS so, in the event of results greater than 30 picocuries per gram, the NMOCD will be aware of additional NORM waste other than stated in this RFP.

It is estimated that it will take 1 day to perform the NORM survey and sample collection.

All site activities and laboratory analyses will be detailed in the Phase II Report.

5. NORM Requirements

According to the RFP, tank number 112 requires decontamination and disposal of NORM waste. BBC has contracted Norm Decon Services, LLC (NDS) of Midland, Texas to assist in performing the NORM survey and sample collecting and analysis. NDS is a licensed NORM contractor in the State of Texas that has performed hundreds of NORM surveys in several states including New Mexico. NDS is able to perform this survey for the Goodwin Treating Plant under reciprocity from the New Mexico Environment Department (NMED) authorizing NDS to perform radiological work in New Mexico under their Texas Radioactive Materials License (No. L04917). Please see **Appendix II** for a copy of the Texas license, a reciprocity extension letter from the New Mexico Environment Department (NMED), NDS's sample references and personnel qualifications, and a corporate brochure describing their capabilities and services.

NDS will perform a gridded pre-job survey of the restricted work area around tank number 112 using guidelines established in 20 NMAC 3.1 subpart 14, Appendix A and three pre-job soil samples will be collected as required by the by the NMED and NDS's license. The soil samples will be sent to the American Radiation Services, Inc. (ARS) laboratory in Baton Rouge, Louisiana for Radium 226 testing.

A restricted area around the tank will be established and effluent air samples from the restricted area boundary will be collected. All personnel entering the restricted area will be required to wear proper personal protective equipment including, but not limited to Tyvek coveralls, rubber gloves, TLD badges, and either cartridge type or supplied air respirators. In addition, all personnel will be properly trained for NORM work including, but not limited to, 8-hr. NORM Surveyor and 40-hr NORM Radiation Safety Officer (RSO) or NORM Field Supervisor.

In addition, breathing zone air samples from the work area will be collected anytime a work evolution is being performed and continuous monitoring of H_2S, O_2 and LEL levels will be performed using a tri-gas monitor.

Using shovels and a backhoe, all NORM contaminated waste will be removed from tank number 112 and placed in roll off containers. All residual contamination will be removed using high-pressure steam. The residual waste will be placed into the roll off container for disposal.

A NORM survey of the tank will be performed using guidelines established by the NMED to verify the tank has been decontaminated to levels established in 20 NMAC 3.1 subpart 14 for releasing equipment for unrestricted use.

The roll off containers will be placed into a temporary storage area on site until export permits can be obtained from the Rocky Mountain Low-Level Radioactive Waste Board.

After receiving the export permit, the NORM waste will be properly manifested and transported to a licensed NORM disposal facility operated by Lotus, LLC located in Andrews County, Texas.

A gridded post-job survey of the restricted work area will be performed around tank number 112 using guidelines established in 20 NMAC 3.1 subpart 14, Appendix A and three post-job soil samples will be collected as required by the by the NMED and NDS's license. The soil samples will be sent to the American Radiation Services, Inc. (ARS) laboratory in Baton Rouge, Louisiana for Radium 226 testing.

It is estimated that it will take 2 days to complete the removal and decontamination of the NORM contamination in tank number 112.

A Phase II report will be submitted detailing all site activities, laboratory results, release surveys, permits, and transportation and disposal manifests pertaining to the NORM survey and the NORM decontamination and disposal.

6. Tank Fluid Removal and Disposal

BBC will use vacuum and transport trucks to remove all liquids in the tanks at the Goodwin Treating Plant. BBC has contracted Controlled Recovery, Inc. to assist BBC in performing the removal, transportation, and disposal of the fluids. The fluids will be disposed of or recycled at CRI's facility in Lea County. All personnel on site performing these services will be properly trained in First Aid, CPR, H2S, Emergency response, and HAZMAT. Site supervisors will be on site at all times who are additionally trained in HAZWOPER.

The turnkey cost associated with this activity is based on calculated volumes supplied in this RFP. BBC used tank manufacturer's charts to calculate the volumes based on the information supplied in the RFP. The volume of fluids to be disposed of is 1, 784 bbls.

It is estimated it will take 5 days to complete the removal of all liquids.

All site activities associated with this process will be detailed in the Phase III Report.

7. Tank Solids Removal and Disposal

BBC will furnish equipment and personnel to clean all of the tanks on site and dispose of the waste. BBC has contracted Controlled Recovery, Inc. to assist BBC in performing the removal, transportation, and disposal of the tank solids. The solids will be landfarmed and remediated at CRI's facility in Lea County. All personnel on site performing these services will be properly trained in First Aid, CPR, H2S, Emergency response, Confined

Space Entry, and HAZMAT. Site supervisors will be on site who are additionally trained in HAZWOPER.

Each tank will be cleaned utilizing some or all of the following: vacuum trucks, hot oil trucks, and necessary personnel. In addition, all appropriate safety related measures and equipment will be employed when necessary such as; self-contained breathing apparatus, body harnesses, life lines, air trailer, copus fans, air compressor, 3 gas monitor, hand tools, and cleaning supplies.

The turnkey cost associated with this activity is based on calculated volumes supplied in this RFP. BBC used tank manufacturer's charts to calculate the volumes based on the information supplied in the RFP. The volume of solids to be disposed of is 300 cubic yards.

It is estimated it will take 7 days to complete the removal and disposal of all tanks solids.

All site activities associated with this process will be detailed in the Phase III Report.

8. Tank and Equipment Removal

BBC will dismantle and remove, recycle, or dispose of all tanks, vessels, treaters, underground pipes, hardware, equipment, and debris at either an appropriate recycler or disposal facility. The tanks, equipment, and debris will only be removed after cleaning and decontamination.

BBC has contracted Controlled Recovery, Inc. of Hobbs, New Mexico to assist BBC in the removal of the tanks, vessels, treaters, pipe, and debris.

The tanks, vessels, and treaters will be removed using 30-ton trucks with poles and winches to load the tanks onto trailers that will transport the tanks to a recycler or disposal facility. The associated pipes, hardware, equipment, and trash will be removed by a BBC crew and transported to the appropriate recycling or disposal facility.

It is estimated that it will take 8 days to complete the tanks and equipment removal.

All site activities associated with this process will be detailed in the Phase III Report.

9. Near-surface Contamination Investigation

BBC will conduct soil investigations of the areas around and underneath the tank sumps, tanks, and treaters after their removal. Underneath the tank bottom soil pile located in the northwest corner of the site will also be investigated. The site investigation will determine the extent of hydrocarbon and chloride impact to the soil.

Each tank/sump location and the tank bottom pile will be partially excavated using a backhoe in order to profile the soil to determine vertical and horizontal extent of the contamination and obtain soil samples for PID measurements and lab submittal. The maximum sample depth will be 5 feet as stated in the RFP. BBC will use a hand-auger sampling tool and/or a backhoe to investigate and collect soil samples from the sub-surface. A photo ionization detector (PID) will be utilized to screen the soils. At least one sample with the highest PID reading at the bottom of the excavation or sample point will be submitted to the Trace Analysis laboratory for analysis of TPH, BTEX, and chlorides. A total of 35 samples across the site will be submitted to the lab for analysis. No further testing or excavation activities will occur until receipt of the test results that will determine the amount and depth of soil removal covered in the next step of the proposal.

It is estimated that it will take 4 days to perform the near-surface investigation.

All site activities associated with this process and laboratory results will be detailed in the Phase III Report.

10. Contaminated Soil Removal

Using the data collected from the drilling of the bore hole in the over flow pit to determine the depth to groundwater, the profiling (vertical and horizontal extent), and the test results from the near-surface investigation of the areas beneath the tanks/sumps, treaters, and tank bottom soil pile, BBC will devise an excavation plan for the removal of the contaminated soil.

BBC will determine the amount of soil to be excavated based on the depth to groundwater and the hydrocarbon concentrations found in the test results obtained from the near-surface investigation using the following criteria as set forth in the RFP.

If the depth to groundwater is in excess of 50 feet bgs, the soil removal will be limited to soils in excess of 1000 ppm TPH, 50 ppm BTEX, and 10 ppm benzene to a maximum depth of 5 feet. If the depth to groundwater is less than 50 feet bgs, the soil removal criteria will be all soils in excess of 100 ppm TPH, 50 ppm BTEX, and 10 ppm benzene to a maximum excavation depth of 5 feet.

This proposal is based on an amount of 1, 450 cubic yards of contaminated soil as per the RFP.

Once the excavation criteria are determined, the contaminated soils will be excavated using a trackhoe, front end loader, and backhoe. The soil will be loaded into 12 yard, 20 yard, and 24 yard dump trucks and hauled to CRI's facility for remediation via landfarming. Clean back fill soil will be back hauled and stored on site during the excavation phase.

It is estimated that the excavation, hauling, and return with clean backfill soil to be stockpiled will take 10 days.

All site activities associated with this process will be detailed in the Phase III Report.

11. Backfilling Excavations

BBC will back haul clean soil from CRI's facility and store the soil on site until the excavation is completed. Upon completion of the excavation, all excavation sites will be backfilled and compacted to slightly above ground surface level to allow for positive runoff.

It is estimated that the backfilling and compaction of the excavations will take 2 days.

All site activities associated with this process will be detailed in the Phase III Report.

12. Phase I Report

BBC will prepare a comprehensive report summarizing previous site activities and detailing the activities of drilling the bore hole, installing the groundwater monitoring well, developing and purging the well, and sampling the groundwater. The report will include drill logs, monitor well installation diagrams, data summary tables, and original laboratory analytical data with associated QA/QC support material.

It is estimated it will take 2 days to complete the Phase I Report after all test data is received.

13. Phase II Report

BBC will prepare a comprehensive report with a summary of previous site activities and detailing the activities covering the NORM survey and decontamination and disposal of the NORM waste in tank number 112. The report will detail all site activities, laboratory results, release surveys, permits, and transportation and disposal manifests pertaining to the NORM survey and the NORM decontamination and disposal.

It is estimated it will take 3 days to complete the Phase II Report after all test data is received.

14. Phase III Report

BBC will prepare a comprehensive report with a summary of previous site activities and detailing the activities covering the removal and recycling of tank fluids, the removal and

remediation of tank solids, the removal and recycling or disposal of all tanks, vessels, treaters, pipes, equipment, and all site debris. In addition, the information covering the near-surface soil investigation, the excavation and disposal of contaminated soils, and the backfilling of the excavations will be in reported. Summary tables of all analytical data collected will also be included along with the original analytical data and all associated QA/QC materials.

It is estimated that it will take 10 days to complete the Phase III Report after all site activities and all test data are received.

3.0 RESPONSE TO BUSINESS SPECIFICATIONS

BBC International, Inc. acknowledges and understands the business specification as outlined in the RFP. BBC accepts these terms as stated in the transmittal letter.

OFFER AMOUNT –
TURNKEY COST
SUPPLEMENTAL RATES

BUDGET GOODWIN RFP 10-521-07-04844

TECHNICAL SPECIFICATION

		ITEM COST	
1	SUB-SURFACE CONTAMINATION INVESTIGATION BASED ON AIR ROTARY	$	2,360.00
2	WELL COMPLETION BASED ON 60 FOOT WELL	$	1,630.00
3	GROUNDWATER SAMPLING AND ANALYSIS	$	1,750.00
4	NORM REQUIREMENTS	$	53,500.00
5	NORM SURVEY AND LAB ANALYSIS	$	3,800.00
6	TANK FLUID REMOVAL AND DISPOSAL	$	19,200.00
7	TANK SOLIDS REMOVAL AND DISPOSAL	$	28,700.00
8	TANK AND EQUIPMENT REMOVAL	$	25,800.00
9	NEAR-SURFACE CONTAMINATION INVESTIGATION BASED ON 35 LAB SAMPLES	$	16,300.00
10	CONTAMINATED SOIL REMOVAL BASED ON 1450 CUBIC YARDS	$	52,400.00
11	BACKFILLING EXCAVATION WITH BACK-HAULED CLEAN SOIL	$	12,400.00
12	PHASE 1 REPORT	$	1,595.00
13	PHASE 2 REPORT	$	2,230.00
14	PHASE 3 REPORT	$	5,350.00
	TOTAL	$	227,015.00
	NM GROSS RECEIPTS TAX	$	13,620.90
	TOTAL TURNKEY COST	**$**	**240,635.90**

	SUPPLEMENTAL RATE DESCRIPTION OF SERVICE	RATE PER	UNIT
1	AIR ROTARY RIG	$ 355.00	HOUR
2	BENTONITE PELLETS	$ 0.30	POUND
3	BLANK 2 INCH PVC RISER	$ 3.10	FOOT
4	MOVE-IN, MOVE-OUT CHARGES	$ 90.00	HOUR
5	WATER TRUCK - CAPACITY 130 BBLS/2 HOUR MINIMUM	$ 70.50	HOUR
6	4X4 BACKHOE / 3 HOUR MINIMUM	$ 56.50	HOUR
7	48" BUCKET TRACKHOE / 3 HOUR MINIMUM	$ 100.00	HOUR
8	D6 DOZER/ 3 HOUR MINIMUM	$ 100.00	HOUR
9	TRUCKING 12 YARD / 3 HOUR MINIMUM	$ 53.00	HOUR
10	3 YARD FRONT END LOADER / 3 HOUR MINIMUM	$ 82.00	HOUR
11	SENIOR SCIENTIST	$ 85.00	HOUR
12	ENVIRONMENTAL TECHNICIAN	$ 55.00	HOUR
13	CERTIFIED NORM TECH/SCIENTIST	$ 75.00	HOUR
14	LABOR	$ 40.00	HOUR
15	PID	$ 80.00	DAY
16	CHLORIDE LAB ANALYSIS	$ 17.65	PER ANALYSIS
17	TPH LAB ANALYSIS	$ 110.00	PER ANALYSIS
18	BTEX LAB ANALYSIS	$ 53.00	PER ANALYSIS
19	CONTAMINATED SOIL LANDFARM REMEDIATION	$ 15.30	PER CUBIC YARD
20	BACK HAUL CLEAN SOIL	$ 7.35	PER CUBIC YARD
21	NORM DISPOSAL + TRUCKING	$ 1,180.00	PER CUBIC YARD
22	FILING OF APPLICATION TO EXPORT WASTE		
	0-999 CUBIC FEET	$200 or $2.00	PER CUBIC FOOT, WHICHEVER IS GREATER
	1,000 - 9,999 CUBIC FEET	$1,000 + $1.00	PER CUBIC FOOT
	10,000 - 99,999 CUBIC FEET	$6,000 + $0.50	PER CUBIC FOOT
	>100,000 CUBIC FEET	$46,000 + $0.10	PER CUBIC FOOT
	MAXIMUM FEE NOT TO EXCEED $100,000		
23	PRODUCED WATER AND NON NORM LIQUID DISPOSAL	$ 2.35	PER BBL
24	ROLLOFF CONTAINER RENTAL	$ 20.00	PER DAY
25	RADIUM 226 ANALYSIS	$ 155.00	PER ANALYSIS

	ADDITIONAL SUPPLEMENTAL RATE DESCRIPTION OF SERVICE			
1	CORPORATE RADIATION SAFETY OFFICER	$	85.00	HOUR
2	NORM PROJECT MANAGER	$	75.00	HOUR
3	NORM SUPERVISOR	$	75.00	HOUR
4	NORM 3 MAN CREW WITH TRUCK AND TOOLS	$	150.00	HOUR
5	NORM BACKHOE WITH OPERATOR	$	91.75	HOUR
6	LUDLUM MODEL 3 WITH 44-2 PROBE	$	35.30	DAY
7	LUDLUM MODEL 2 GEIGER MEULLER PANCAKE PROBE	$	35.30	DAY
8	LOW VOLUME AIR SAMPLE PUMP (BOUNDARY AND PERSONNEL)	$	120.00	DAY
9	CONFINED SPACE 3 - GAS MONITOR	$	120.00	DAY
10	2" DIAPHRAGM PUMP	$	70.00	DAY
11	2" TRASH PUMP	$	30.00	DAY
12	STEAM PRESSURE WASHER WITH TRAILER	$	295.00	DAY
13	PRESSURE WASHER	$	76.50	DAY
14	AIR COMPRESSOR	$	177.00	DAY
15	GENERATOR	$	35.30	DAY
16	CUTTING TORCH	$	76.50	DAY
17	FIELD NORM DECON WORK, SITE PREPARATION (FLAGGING, SIGNS, DRUM LABELS, SAMPLING TOOLS, MANIFEST, ETC.	$	360.00	DAY
18	MONITOR WELL PURGING/ SAMPLING EQUIPMENT AND PERSONNEL	$	85.00	HOUR
19	PICKUP	$	68.00	DAY
20	DIGITAL CAMERA	$	45.00	DAY
21	VIDEO CAMERA	$	45.00	DAY
22	MILEAGE	$	0.50	MILE
23	20 YD BELLY DUMP/ 3 HOUR MINIMUM	$	65.00	HOUR
24	24 YARD END DUMP/ 3 HOUR MINIMUM	$	73.00	HOUR

4.0 ADDITIONAL TERMS AND CONDITIONS

The payment terms of BBC International, Inc. are Net 30 Days after submission of an invoice. BBC's terms are that this RFP will be broken into four (4) invoice issuance and payment milestones as follows:

1. Invoice issued when completion of borehole and monitor well installation, purging, sampling, and reporting – RFP Budget – Technical Specification Items 1, 2, 3, and 12 (Phase I Report).

2. Invoice issued when completion of NORM survey and analysis and NORM requirements, and reporting - RFP Budget – Technical Specifications Items 4, 5, and 13 (Phase II Report).

3. Invoice issued when completion of tank fluid removal and disposal, tank solids removal and disposal, tank and equipment removal, and reporting – RFP Budget – Technical Specification Items 6, 7, and 8.

4. Invoice issued when completion of near-surface contamination investigation based on 35 lab samples – RFP Budget – Technical Specification Item 9.

5. Invoice issued when completion of contaminated soil removal and backfilling of excavations with clean soil – RFP Budget – Technical Specification Items 10 & 11.

6. Invoice issued when completion of Phase III Report – RFP Budget – Technical Specification Item 14.

APPENDIX I
BBC REFERENCES

BBC INTERNATIONAL
INCORPORATED

www.bbcinternational.com

Hobbs, New Mexico
Houston, Texas
Calgary, Alberta

World-Wide Environmental Specialists

BBC International, Inc., a world-wide environmental consulting and remediation firm, has designed, managed, and completed hundreds of projects that vary widely in site specifics, climate, terrain, and type and level of contamination in diverse locales worldwide.

Our capabilities allow us to offer our clients a vast array of services. These include site investigation, contaminant delineation, interpretation, modeling, and remediation.

Our domestic and international experience proves we are able to meet the challenge of unusual political situations, customs, regulations, restrictions, and the local populace. The expertise of BBC's personnel to adapt to changing conditions is evident in the completion of all projects undertaken.

envirolutions

BBC has a solid track record of providing practical and innovative solutions to it's clients' environmental problems.

BBC's personnel have diverse backgrounds in a multitude of industries. By combing our technical expertise with our specialized environmental knowledge, products and systems, BBC's specialists are able to provide unique insights into solving today's environmental challenges.

The result?

Continuously innovative and state-of-the-art environmental solutions.

(International Affiliates)

Kuwait City, Kuwait

Mexico City, Mexico

Port Harcourt, Nigeria

BBC INTERNATIONAL
INCORPORATED

PROJECTS

Case Histories

CITY OF HOBBS, NM (1995)

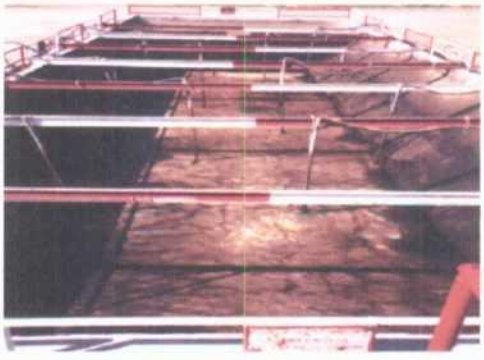
Provided consulting and remediation services to the City of Hobbs. Perform Phase I, II, III site assessment and indoor air quality sampling program for a city building contaminated with an insecticide/pesticide, Malathion. Designed and performed remediation of the building, decontamination of the removed materials, and the decontamination and odor neutralization of the building. Certified all materials as decontaminated according to EPA rules and guidelines. Issued completion report so that the building could be removed for human occupancy.

RAINY LAKE AIRWAYS SITE
COUCHICHING INDIAN RESERVATION
FT. FRANCIS, ONTARIO, CANADA (1994-1995)

Designed the first Environmental Canada Agency approved insitu and exsitu remediation plan for contaminated soil at a former airport refueling site (1950's era) located on the international water boundary with the United States. Designed characterization plan to identify types of contaminants, size of subsurface contaminated plume, direction of plume, and characterization of surface contaminated soil stockpiles. Performed drilling, sampling, installation of monitor wells (6), injection wells (114), recovery wells (7), analyzed results, and designed remediation plan and system. Executed remediation plan for surface oils and installed remediation equipment and system for subsurface contaminated soils and groundwater. Monitored and operated remediation system on an ongoing basis to completion. Total amount of contaminated oil treated was 3,800 cubic yards.

BRITISH GAS TUNISIA LIMITED
SFAX, TUNISIA, NORTH AFRICA (1991-1994)

Designed, developed, built, and operated the world's largest slurry-phase bioremediation project from June 1991 to April 1994. Performed continuous biological treatment of diesel oil-based drill mud and cuttings, chemicals, and crude oil contaminated soils and liquids from oil and gas operations. Each slurry batch size was approximately 750 cubic yards with an average hydrocarbon content of 220,000 ppm TPH (22%) and an average remediation time to less than 100 ppm TPH of 26 days. More than 35,000 cubic yards of solids and 1.512 million gallons of liquids were remediated. Also performed site assessments, site restorations, impact assessments of Roman archeological sites, emergency spill response for both onshore and offshore, boom deployment and training for offshore drilling and production platforms, and brine contaminated water evaporation services.



VARIOUS HYDROCARBON AND SALTWATER
LEAKS AND SPILLS (1983-PRESENT)

Provide remediation services and products to the oil and gas, petrochemical, refining, industrial, food processing and servicing, governmental, and municipal markets. Examples are treatment of hazardous, non-hazardous, regulated and non-regulated wastes such as chlorinated solvents, PCB's, gasoline, diesel, aviation fuel, lubricants, crude oil, and salt/ brine water. Land farming, biopiles, lined treatment cells, and evaporation are just some of the examples of our capabilities.

PROJECTS

Case Histories

COASTAL OIL CORPORATION
OIL REFINERY, KANSAS (1991-1994)

Provided remediation services for a naphtha pipeline subsurface spill. After recovery of free product from the water table for three years, performed biological treatment of contaminated groundwater insitu via recovery, oxygenation, and re-injection system over an area comprising approximately 100 acres. In addition to groundwater treatment, contaminated soils were treated biologically via a drip injection and trench recovery system. Total amount of contaminated soil treated was in excess of 20,000 cubic yards.

WESTGATE SUBDIVISION, HOBBS NM
SHELL E & P TECHNOLOGY COMPANY (1997-PRESENT)

Provide consulting, investigation, and remediation services to Shell E & P Technology Company in a neighborhood found to have contamination related to oil and gas production activities. Overall project management, design, and implementation of soil vapor surveys (300 sample points). Soil borings (36), groundwater monitor wells (16), and excavation and removal of contaminated soils (3,000+ cubic yards). Some of the other services provided for the project are groundwater and soil sampling, CAD map generation, contouring, GPS locating, GIS surveying, computer contaminate and plume modeling, regulatory liaison, media relations, and local and state government coordination. Additional services provided are legal interaction and expert testimony.

EXCAVATION OF DISPOSAL PIT, EUNICE NM
SHELL E & P TECHNOLOGY COMPANY (1998)

Consulting, investigation, and remediation services to Shell E & P Technology Company for an old burn and disposal pit on private ranch land. Investigate via soil borings to determine size and extent of a 1950's vintage oil disposal pit. Excavation services of over 7,000 cubic yards of hydrocarbon contaminated soil, disposal, and backfill of the pit. Bioremediation of an additional 13 other sites along flow lines due to crude oil spills and leaks on the ranch.

THE SHELL PETROLEUM DEVELOPMENT COMPANY
OF NIGERIA LIMITED
WARRI & PORT HARCOURT, NIGERIA (1995-1998)

Provided consulting investigation, 3-D modeling, design, and remediation services to The Shell Petroleum Development Company of Nigeria Limited in both Warri and Port Harcourt, Nigeria. Implemented site investigations and characterizations of a chemical drum dump site, crude oil producing well sites, and crude oil and natural gas pumping stations in the cities, jungle, and swamps. Performed soil boring, monitor well installation, and 3-D electro-magnetic imaging services of several sites. Analyzed soil and groundwater samples, interpreted results, designed contour and gradient maps, and remediation systems for the cleanup of hydrocarbon contaminants. Designed, built, and operated remediation systems for several of the sites investigated in the jungle and swamp.

BBC INTERNATIONAL
INCORPORATED

SERVICES

The expertise of our professional staff enables BBC to provide our clients with a wide range of comprehensive services to meet each specific and unique situation. We specialize in innovative and cost-effective methodologies and systems that enable our clients to comply with federal, state, and provincial environmental regulations.

Project Management Site Assessments – Phase I, II, III Site Audits
Decommissioning Environmental Planning Hydro-geological and Wetland Studies
Waste Management Audits and Manuals Impact Assessments
Surface and Groundwater Quality Air Quality Permitting OCD Discharge Plans
Engineering CAD Design GIS Surveying Wastewater Treatment Systems
Soil Sampling Monitor Well Drilling Groundwater Sampling Asbestos Abatement
NORM Worker Protection Plans NORM Investigation / Disposal
3-D Subsurface Modeling & Imaging Systems

Insitu / Exsitu Bioremediation Bio-Venting Bio-Stimulation Bio-Augmentation
Land Reclamation Pit Closures Land Farming UST / AST Remediation
Well Site Remediation Excavation and Disposal Waste Water Treatment
Multi-Phase Bio-Chemical Processes Polymer Technologies
Emulsion Breaking Technologies Salt Contamination Remediation
De-Nitrification Treatment Systems

Contact Us At Our Corporate Office:

BBC INTERNATIONAL, INC.

1324 W. MARLAND P.O. BOX 805
HOBBS, NEW MEXICO 88241 USA
PHONE / USA: 800-882-0266
PHONE: 505-397-6388
FAX: 505-397-0397
Email: bbc@bbcinternational.com
Web: www.bbcinternational.com

BBC International, Inc. has offices in Hobbs, New Mexico – Houston, Texas – Calgary, Alberta – with affiliates in Kuwait City, Kuwait – Mexico City, Mexico – Port Harcourt, Nigeria. Theses locations allow us to serve our customers from strategic locations throughout the world marketplace. We also have additional affiliates in other areas around the world to aid in meeting our clients' requirements.

References, Personnel Experience, and Case Histories

References

Wayne Hamilton
Shell E & P
200 N. Dairy Ashford
WCK Room 4154
Houston, TX 77079
281-544-2322

Steve Bishop
Occidental Permian, Ltd.
1017 W. Stanolind Road
Hobbs, NM 88240
505-397-8251

Roy Escabedo
HCR 1, Box 90
Denver City, TX 79323
806-592-6481

Jeff Hudson
Lotus, LLC
PO Box 1277
Andrews, TX 79714
915-523-3320 ext. 18

John Coy
Conoco, Inc.
PO Box 180
Maljamar, NM 88264
1-505-676-2371 ext. 20

PROFESSIONAL AND TECHNICAL PERSONNEL

Cliff P. Brunson, CEI, CRS, President of BBC International, Inc. Mr. Brunson is a 1980 graduate of Texas A & M University in College Station, Texas. He is accredited as a Certified Environmental Inspector (CEI) and a Certified Remediation Specialist (CRS) with the Environmental Assessment Association of America.

Mr. Brunson has over 20 years experience in the environmental field. He has investigated, designed, implemented, and supervised hundreds of site investigations and remediation projects in diverse locals worldwide such as New Mexico, Texas, Louisiana, Arkansas, Wyoming, California, Florida, Mississippi, Arizona, Minnesota, Ontario, Alberta, British Columbia, Mexico, Kuwait, Tunisia, Egypt, Gabon, Nigeria, Venezuela, Germany, Greece, Australia, and England. He has worked closely with the New Mexico Oil Conservation Division, Texas Railroad Commission, Bureau of Land Management, Bureau of Indian Affairs, US State Department, Environment Canada, US Environmental Protection Agency, Pasteur Institute of Paris, and various other federal, provincial, and state agencies.

Mr. Brunson has performed Environmental Site Assessments (ESA) and audits for the oil and gas industry, commercial real estate, and residential real estate industries. He is knowledgeable about regulatory standards and guidelines in numerous states.

Mr. Brunson has extensive experience in the oil exploration and production and gas processing and transportation industries. He has expertise in areas of contaminated soils and groundwater investigations, design of remediation action plans, and implementation of remediation of various contaminants in both liquid and solid phases. Additional areas of expertise include health and safety, air sampling, and NORM surveying.

Mr. Brunson is responsible for corporate affairs, senior project management, proposal preparation, investigation and remediation designs, and marketing.

Ken W. Swinney, CEI, CRS, Senior Environmental Specialist, graduated from New Mexico Junior College with an Environmental Technology degree in December 2000. He is accredited as a Certified Environmental Inspector (CEI) and a Certified Remediation Specialist (CRS) with the Environmental Assessment Association of America.

Mr. Swinney has over 27 years experience in the oil and gas industry, with the last three in the environmental field. He has investigated, designed, implemented, and supervised numerous site investigations and remediation projects in New Mexico, Texas, Alberta, Mexico, and Nigeria. He has worked closely with the New Mexico Oil

Conservation Division, Texas Railroad Commission, Bureau of Land Management, and various other federal, provincial, and state agencies.

Mr. Swinney joined BBC in August 2000, bringing his 27 years experience of field supervision, project design, project implementation, and engineering. He is an experienced well logging and perforating engineer, a certified Radiological Handler Supervisor, certified in the use of explosives, and has extensive experience in the transportation and handling of radioactive materials.

Mr. Swinney has performed Environmental Site Assessments (ESA) and audits for the oil and gas industry, commercial real estate, and residential real estate industries. He is knowledgeable about regulatory standards and guidelines in numerous states.

Mr. Swinney has extensive experience in the oil exploration and production industries. He has expertise in areas of contaminated soils and groundwater investigations, design of remediation action plans, and implementation of remediation of various contaminants in both liquid and solid phases. Additional areas of expertise include health and safety and radioactive materials.

Mr. Swinney is responsible for senior project management, proposal preparation, investigation and remediation designs, field supervision, and marketing.

David P. Wadley, Senior Field Specialist, has five years experience as an environmental technician. Mr. Wadley has expertise in areas of contaminated soil and groundwater sampling and monitoring. He has experience in supervision of remediation projects, soil and groundwater contamination investigations, field sampling activities, and heavy construction in the oil and gas industry.

Mr. Wadley is responsible for investigation and remediation designs, field supervision, and field sampling of soil and groundwater.

Case History

COASTAL OIL CORPORATION OIL REFINERY, KANSAS
Provided remediation services for a naphtha pipeline subsurface spill. After recovery of free product from the water table for three years, performed biological treatment of contaminated groundwater insitu via recovery, oxygenation, and re-injection system over an area comprising approximately 100 acres. In addition to groundwater treatment, contaminated soils were treated biologically via a drip injection and trench recovery system. Total amount of contaminated soil treated was in excess of 20,000 cubic yards. Total project cost

WESTGATE SUBDIVISION, HOBBS NM
SHELL E & P TECHNOLOGY COMPANY
Provide consulting, investigation, and remediation services to Shell E & P Technology Company in a neighborhood found to have contamination related to oil and gas production activities. Overall project management, design, and implementation of soil vapor surveys (300 sample points). Soil borings (36), groundwater monitor wells (16), and excavation and removal of contaminated soils (3,000+ cubic yards). Some of the other services provided for the project are groundwater and soil sampling, CAD map generation, contouring, GPS locating, GIS surveying, computer contaminate and plume modeling, regulatory liaison, media relations, and local and state government coordination. Additional services provided are legal interaction and expert testimony. Total project cost

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SHELL E & P TECHNOLOGY COMPANY
Consulting, investigation, and remediation services to Shell E & P Technology Company for an old burn and disposal pit on private ranch land. Investigate via soil borings to determine size and extent of a 1950's vintage oil disposal pit. Excavation services of over 7,000 cubic yards of hydrocarbon contaminated soil, disposal, and backfill of the pit. Bioremediation of an additional 13 other sites along flow lines due to crude oil spills and leaks on the ranch.

THE SHELL PETROLEUM DEVELOPMENT COMPANY OF NIGERIA LIMITED
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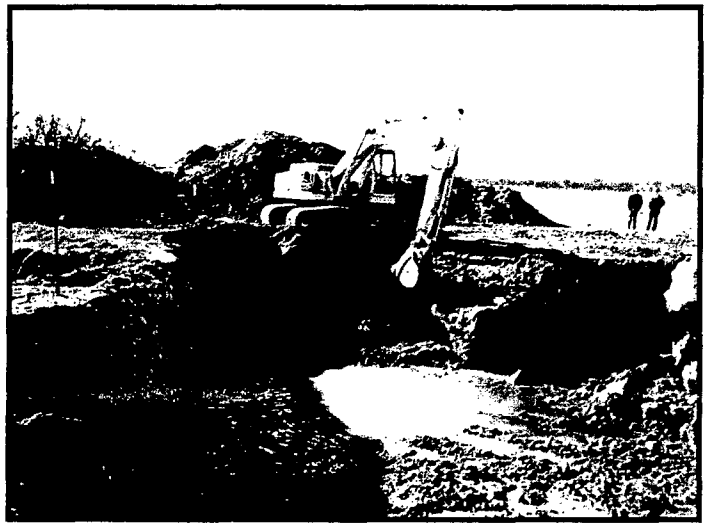
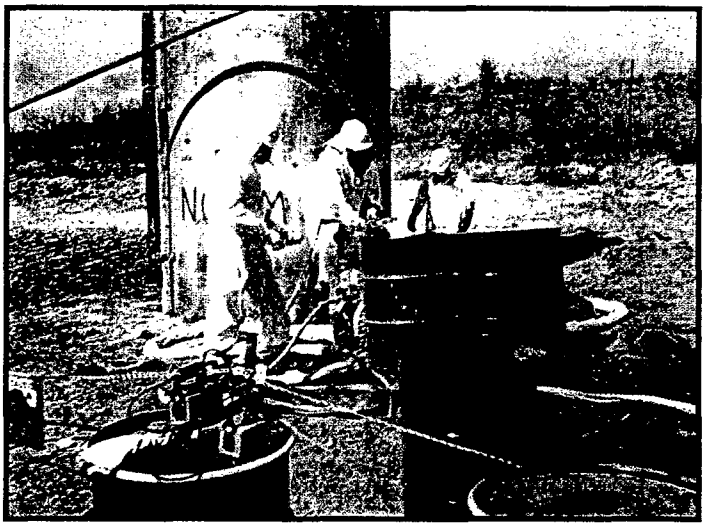
operated remediation systems for several of the sites investigated in the jungle and swamp. Total project cost

RAINY LAKE AIRWAYS SITE COUCHICHING INDIAN RESERVATION
FT. FRANCIS, ONTARIO, CANADA
Designed the first Environmental Canada Agency approved insitu and exsitu remediation plan for contaminated soil at a former airport refueling site (1950's era) located on the international water boundary with the United States. Designed characterization plan to identify types of contaminants, size of subsurface contaminated plume, direction of plume, and characterization of surface contaminated soil stockpiles. Performed drilling, sampling, installation of monitor wells (6), injection wells (114), recovery wells (7), analyzed results, and designed remediation plan and system. Executed remediation plan for surface oils and installed remediation equipment and system for subsurface contaminated soils and groundwater. Monitored and operated remediation system on an ongoing basis to completion. Total amount of contaminated oil treated was 3,800 cubic yards. Total project cost

BRITISH GAS TUNISIA LIMITED SFAX, TUNISIA, NORTH AFRICA
Designed, developed, built, and operated the world's largest slurry-phase bioremediation project from June 1991 to April 1994. Performed continuous biological treatment of diesel oil-based drill mud and cuttings, chemicals, and crude oil contaminated soils and liquids from oil and gas operations. Each slurry batch size was approximately 750 cubic yards with an average hydrocarbon content of 220,000 ppm TPH (22%) and an average remediation time to less than 100 ppm TPH of 26 days. More than 35,000 cubic yards of solids and 1.512 million gallons of liquids were remediated. Also performed site assessments, site restorations, impact assessments of Roman archeological sites, emergency spill response for both onshore and offshore, boom deployment and training for offshore drilling and production platforms, and brine contaminated water evaporation services. Total project cost

N•RM DECON SERVICES, LLC

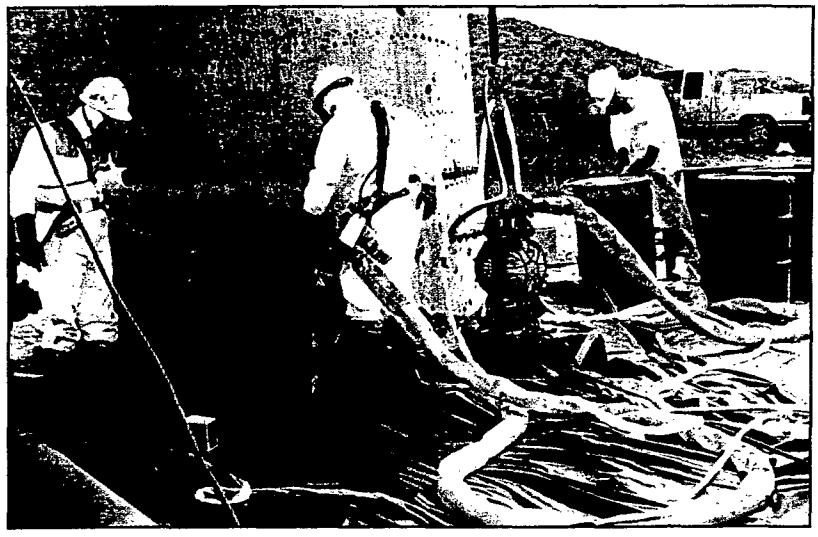




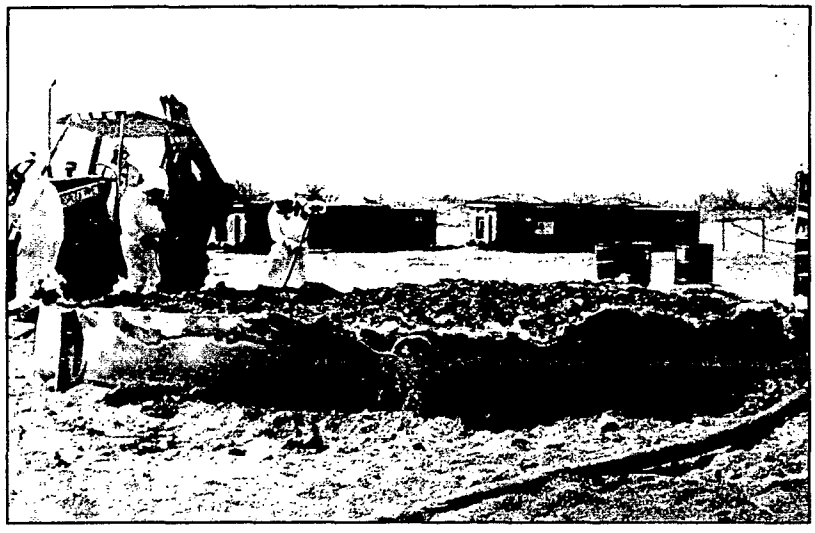
Decontamination Services for the Oil & Gas Industry

NORM Decon Services, LLC (NDS) has been performing Naturally Occurring Radioactive Materials (NORM) decontamination services since 1996. NDS has been performing these services under their Texas Department of Health Radioactive Materials License (No. L04917). This license allows NDS to perform decontamination of NORM from vessels, tanks, tubulars and soils. Additionally, the state of New Mexico has issued NDS a Certificate of Registration as a Radiation Safety Consultant for Industrial Uses for NORM and it has granted NDS reciprocity to perform decontamination activities in New Mexico.

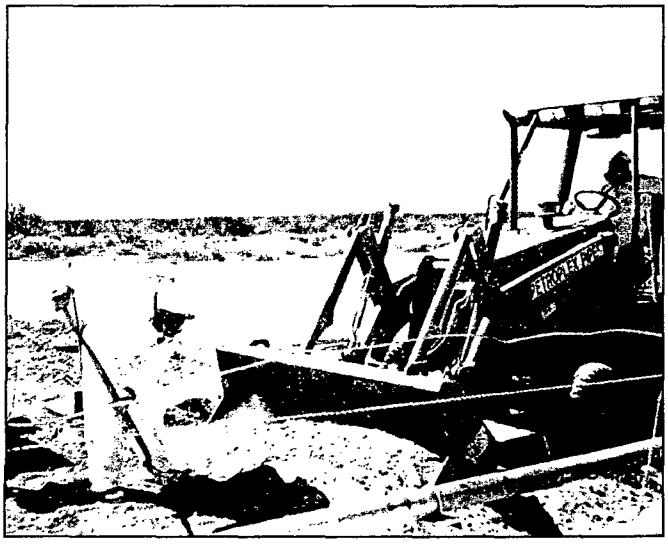
In March 1999, NDS opened a fixed facility to perform decontamination services and waste storage. Prior to this date all decontamination services were performed at the client's site. The site is located in Midland, Texas, near Midland International Airport, north of Business 20 at 2809 S. County Road 1257.



Tank and vessel decontamination



On-site decontamination



Soil Removal

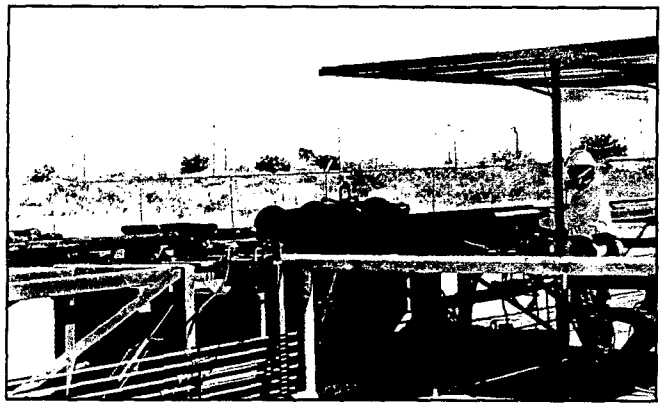
On-site tank and vessel decontamination

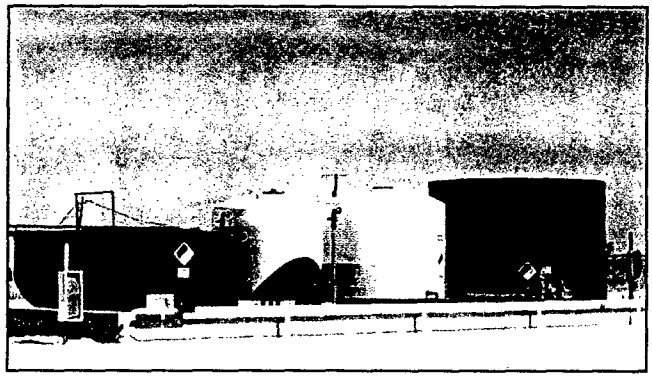
NDS offers the following NORM services:

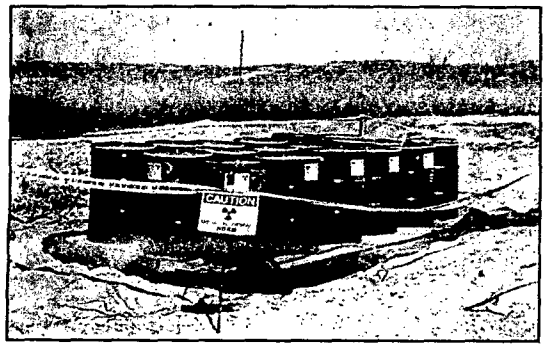
- Decontamination of production equipment at client's site, or at our facility located in Midland, Texas. This production equipment includes but is not limited to:

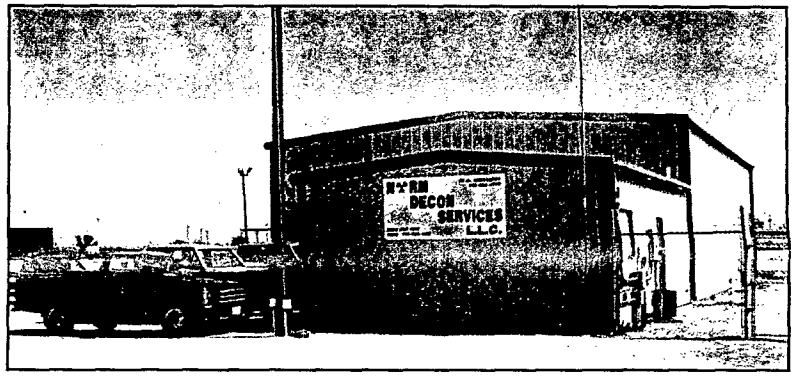
  Tanks
  Vessels
  Heater Treaters
  Separators
  Free-Water Knockouts
  Piping and Valves

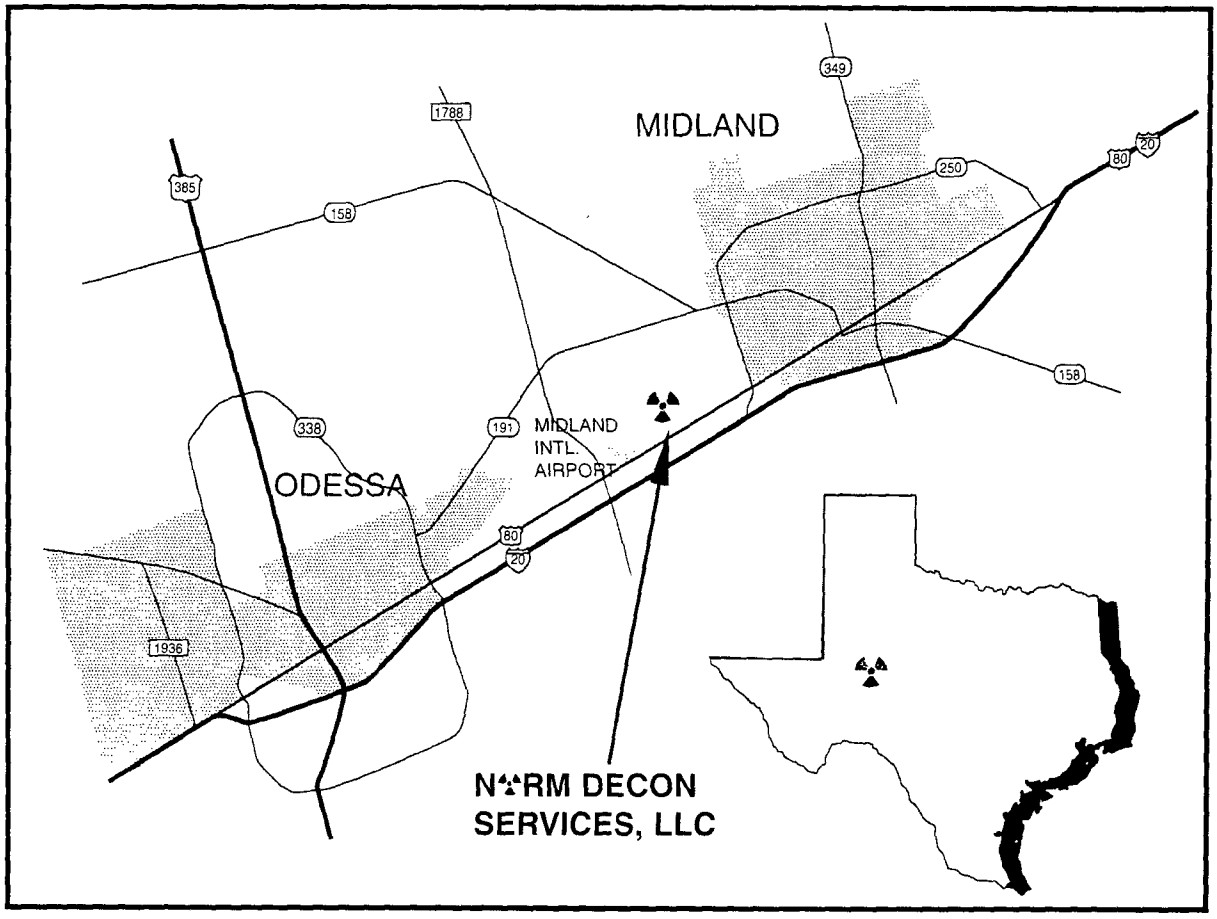
- Removal and disposal of NORM contaminated soils and scale from pits, production and well sites, pipe and equipment storage yards.
- Decontamination of pipe and tubing at our facility located in Midland, Texas; Internal decontamination of tubulars from 2" to 12" in diameter, including plastic or cement lined pipe.
- Release and assessment surveys of onshore and offshore production facilities, saltwater injection facilities, pipe and equipment yards, pipeline pump stations, compressor facilities. gas plants and refineries.
- Permitting, regulatory assistance, documentation and supervision for the transportation and disposal of waste and equipment.
- Temporary storage of contaminated equipment, tubulars, and drummed NORM waste.
- Turnkey closeouts of NORM storage facilities.
- Survey instrument rental.











NORM Decon Services, LLC can assist its clients in instituting a comprehensive NORM program. We can provide training, survey equipment, waste and contaminated equipment storage. Clients can eliminate the risk and liability of maintaining NORM waste and equipment storage facilities and the need to monitor and maintain these sites. Let NORM Decon Services, LLC close out these sites on a "turnkey" basis with services that include transportation, decontamination, disposal and documentation.

Gary E. Miller, CEA
President, Corp. Radiation Safety Officer
915-682-2476 • Mobile 915-557-4681
E-mail: gmiller@normdecon.com

Robert "Kit" Parten
NORM Supervisor and Yard Manager
915-563-1123
E-mail: rcparten@normdecon.com

Tim Blair, NORM Supervisor
915-563-1123, E-mail: timblair@normdecon.com

OFFICE: 1910 North Big Spring
Midland, Texas 79705
915-682-2476 • Fax 915-682-3946

YARD: 2809 S. County Rd. #1257
Midland, Texas 79706
915-563-1123 • Fax 915-563-1823

www.normdecon.com

References

Texaco Inc.
Doc Rodgers
P.O Box 3109
500 N. Loraine
Midland, Texas 79702
915-688-4829

25 Jobs in Texas and New Mexico in 2000
NORM decontamination of pipe, vessels, pits, soil

Texas Railroad Commission
Santos Gonzales
3444 N. First Street, Ste. 600
Abilene, Texas 79603
915-677-3545

Site remediation project for the State of Texas remediation program in Coleman County Texas. Involved the decontamination of tanks and vessels as well as the clean out of a 100 x 100 disposal pit. All were NORM contaminated. The project also included the backfill and restoration of the site. Total project cost $457,000.

Chevron USA
Tracy Darr Van Reet
P.O. Box 1150
Midland, Texas 79702
915-687-7759

Performed vessel and soil decontamination ion projects in Texas.

Experience

Kit Parten, Operations Manager, NORM Supervisor and Facility Manager.

Mr. Parten has nine years experience in environmental project management and NORM Decontamination projects. Mr. Parten's duties include supervision of yard and field operations, project management and bid preparation and cost controls. His environmental experience includes field-sampling activities, ESA's, SPCC plans, NORM surveys and supervision of decontamination. Mr. Parten joined NDS in 1999 as a NORM Supervisor. Mr. Parten joined Highlander Environmental in 1991, where he performed NORM surveys on production equipment in 16 states as part of environmental site assessments performed by Highlander. Mr. Parten is also trained as a Radiation Safety Officer and has been active as a NORM supervisor on numerous equipment and soil decontamination projects in Texas and New Mexico. Prior to joining Highlander, Mr.

Parten was employed for a number of years in the oil and gas drilling industry. His practical knowledge of the oil and gas industry has been of great assistance in NDS's work in this area. Mr. Parten received his associate's degree from Midland College in 1991 (with honors).

Mitchell W. Davis, RRPT. Mr. Davis is the Corporate Radiation Safety Officer for NDS. Mr. Davis's responsibilities include oversight of radiation safety, license documentation, training and sales. Mr. Davis has over twenty years of health physics and radiation protection experience, which includes work in the U.S. Navy and the commercial nuclear power industry. He has been involved with the NORM industry since 1993 and is the author of several papers on NORM protection, detection, and control. Mr. Davis has developed several training courses on NORM and has presented this training to over 3,000 individuals nationwide. He was an invited speaker at the First Symposium on NORM held in Cairo, Egypt in July of 1996, sponsored by the Egyptian Atomic Energy Authority. He is on the National Registry of Radiation Protection Technologists (NRRPT). He is also a member of the Health Physics Society, the American Nuclear Society, and is an Affiliate member of the Conference of Radiation Control Program Directors (CRCPD).

Tim Blair, NORM Supervisor,

Mr. Blair has five years experience as an environmental technician on various remediation projects and NORM project management on various decontamination projects. Mr. Blair's responsibilities include NORM decontamination project management and operations supervision. Mr. Blair's environmental experience includes field-sampling activities, ESA's, NORM surveys and NORM work supervision of decontamination operations. Prior to joining NDS in 1999 Mr. Blair was employed by Highlander. as a Engineering Technician and NORM work supervisor. Mr. Blair was employed for a number of years in the oil and gas industry. His practical knowledge of the oil and gas field operations and production equipment has been of great assistance in NDS's work in this area. Mr. Blair is a certified Radiation Safety Officer.

TRC Form 12-1
7/90

Texas Department of Health
BUREAU OF RADIATION CONTROL

RADIOACTIVE MATERIAL LICENSE

Pursuant to the Texas Radiation Control Act and Texas Health Department regulations on radiation, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess and transfer radioactive material listed below, and to use such radioactive material for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations and orders of the Texas Department of Health (Agency) now or hereafter in effect and to any conditions specified below.

LICENSEE	This license is issued in response to a letter
1. Name: NORM DECON SERVICES LLC ATTN MITCHELL W DAVIS	dated: November 21, 2000
2. Address: 1910 NORTH BIG SPRING STREET MIDLAND TX 79705	signed by: Mitchell W. Davis
	3. License Number: L04917 / Amendment Number: 12
	PREVIOUS AMENDMENTS ARE VOID
	4. Expiration Date: **January 31, 2006**

RADIOACTIVE MATERIAL AUTHORIZED

5. Radioisotope	6. Form of Material	7. Maximum Activity	8. Authorized Use
A. Naturally occurring radioactive material (NORM) as defined in **TAC §289.259	A. Solid, sludge or liquid	A. For the Midland facility: 2 Ci total not to exceed 10 µCi/g and/or 40 cubic yards of NORM waste. For jobs at customers facilities: As needed for each job.	A. Decontamination of NORM contaminated pipe, equipment, lands and materials. Possession incidental to decontamination of NORM contaminated pipe, equipment and materials. Packaging/Repackaging of NORM waste. Temporary storage prior to transfer to original generator, authorized recipients and/or authorized NORM disposal facilities.

* Ci-Curies mCi-Millicuries µCi-Microcuries **Title 25 Texas Administrative Code

9. Radioactive material shall only be stored and used at:

Site Number	Location
002	Midland - 2809 South County Rd. 1257

10. The authorized place of use is also at temporary sites located at a customers facility, in areas not under exclusive Federal jurisdiction, throughout Texas.

11. Each site shall maintain documents and records pertinent to the operations at that site. Copies of all documents and records required by this license shall be maintained for Agency review at Site 002

12. The licensee shall comply with the provisions of (as amended) 25 TAC §289.201, §289.202, §289.203, §289.204, §289.205, §289.251, 289.252, §289.257, and §289.259.

13. The individual designated to perform the functions of Radiation Safety Officer (RSO) for activities covered by this license is Mitchell W. Davis.

14. Radioactive material shall be used by, or under the direct supervision of, individuals designated by the RSO only after each worker has successfully completed an Agency accepted training course. Documentation verifying the successful completion of the training for each worker shall be maintained by the licensee for inspection by the Agency.

Texas Department of Health
BUREAU OF RADIATION CONTROL

RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
L04917	12

15. A. The RSO shall conduct unannounced audits each month to assure that procedures are being conducted at the appropriate frequency and in the appropriate manner. These audits shall as a minimum consist of the following:
(1) survey location for personnel,
(2) material receipt procedures,
(3) processing procedures,
(4) personnel survey procedures,
(5) personnel monitoring procedures,
(6) equipment and material release surveys,
(7) material balance records and calculations,
(8) transfer and disposition records,
(9) occupational and environmental air monitoring procedures,
(10) facility survey procedures, and
(11) posting and noticing requirements

B. The RSO shall document these audits by recording the date of the audit, the person conducting the audit, the findings of the audit, and any corrective action taken. These records shall be retained for inspection by the Agency.

16. The Licensee shall provide written notification to the Agency:

A. At least five (5) days prior to commencing NORM decontamination or remediation activities. The notification shall specify the following:
(1) type of operation;
(2) the mode of decontamination (if more than one mode is authorized on the license);
(3) address and physical location of the decontamination or remediation activity;
(4) dates when the activity will be conducted; and
(5) the name of the person in charge of the operation at the site.

B. within 7 days of completion of decontamination work for a customer at the customer's site. The notification shall specify the following:
(1) customer name,
(2) customer mailing address,
(3) customer telephone number,
(4) quantity of contaminated material generated as a result of the decontamination process, and
(5) disposition of contaminated material.
(a) If contaminated material is left in the possession of the customer, the licensee shall also submit the following information:

(i) method (e.g., drums) of storage of contaminated material,
(ii) site where material is stored (provide map if street address is not available)
(iii) location at site where material is stored, and
(iv) storage conditions (e.g., metal shed, pallets on open ground, etc.).

TRC Form 12-1
7/90

Texas Department of Health
BUREAU OF RADIATION CONTROL

RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
L04917	12

16. (continued)

C. This information shall be addressed to the following:

NORM Decontamination Notification
ATTN: Division of Compliance and Inspection
Bureau of Radiation Control
Texas Department of Health
1100 W. 49th Street
Austin, Texas 78756-3189 or
by facsimile to: (512) 834-6654.

17. Except as specifically provided otherwise by this license, the licensee shall possess and use the radioactive material authorized by this license in accordance with statements, representations, and procedures contained in the following:

application dated July 31, 1998 (and the accompanying procedures dated July 30, 1998);

letters dated December 23, 1998 (and the accompanying modifications to the procedures dated December 29, 1998), July 26, 1999 (and accompanying figures 4, 6, 7A and 8), September 9, 1999 (and attachments), November 21, 2000;

Figures No. 4 and 8, received by TDH on May 20, 1999; and

fax received January 23, 2001.

Title 25 of TAC Chapter 289 shall prevail over statements contained in the above documents, unless such statements are more restrictive than the regulations.

EFF:ef

FOR THE TEXAS DEPARTMENT OF HEALTH

Date January 24, 2001

Eugene F. Forrer II, Chief
Uranium/Norm Licensing Program

State of New Mexico
ENVIRONMENT DEPARTMENT
Community Services Bureau
Radiation Protection Program
2052 Galisteo Street, P.O. Box 26110
Santa Fe, New Mexico 87502
Telephone (505) 827-1862
Fax (505) 827-1863

GARY E. JOHNSON
GOVERNOR

PETER MAGGIORE
SECRETARY

PAUL R. RITZMA
DEPUTY SECRETARY

Monday, December 11, 2000

Mitchell W. Davis, Radiation Safety Officer
NORM Decon Services, LLC
1910 North Big Spring Street
Midland, TX 79705

SUBJECT: NOTICE OF RECIPROCAL RECOGNITION OF LICENSE IN NEW MEXICO FOR 2001

License Number: LO4917
Issuing Agency: Texas
License Expiration Date: Wednesday, January 31, 2001

Thank you for your request for reciprocity. In accordance with your request and pursuant to New Mexico Radiation Protection Regulation (NMRPR) 324.A., you are hereby authorized to possess and utilize radioactive materials at temporary job sites in areas not under exclusive Federal jurisdiction within the State of New Mexico. Reciprocity is granted on a year to year basis. This authorization is void after December 31, 2001, or when activities have exceeded 180 days in the calendar year, whichever occurs first.

Your are required to notify the Department in writing at least three (3) days prior to each use of radioactive material in New Mexico. Further, you must notify the Department within one (1) hour after arrival at the actual work location within the State, and notify the Department within one (1) hour after any change in work location within the State. Please note that you may be subject to a routine field inspection at anytime.

Special Condition(s): The following must be in the possession of the users at the work site: (1) A copy of this letter (2) a complete copy of the New Mexico Radiation Protection Regulations or the applicable sections, which may be purchased from Santa Fe Printing (505) 982-8111, or downloaded from the State website www.nmenv.state.nm.us; (3) a copy of the Radioactive Materials License; (4) a complete inventory of sources brought into the State; (5) pertinent U.S. DOT documents; (6) leak test records for sources brought into the State; (7) instrument calibration records; and (8) personnel training records.

If I can be of assistance, you may contact me at (505) 827-1867 or fax (505) 827-1863.

Sincerely,

Sherry Miller

Sherry Miller
Radiation Specialist

RULE 6

APPLICATION FOR EXPORTATION OF WASTE FROM THE REGION FOR DISPOSAL AT FACILITIES OTHER THAN THE BENTON COUNTY, WASHINGTON FACILITY

6.1 Purpose

Applications should be submitted at least three weeks prior to the time exportation is intended to take place. No waste may be exported until an export permit is issued.

Export applications for land disposal of waste at facilities other than the Benton County, Washington facility should be filed pursuant to this portion of Rule 6. This includes wastes that are to be processed prior to shipment to land disposal facilities other than the Benton County, Washington facility. Applications for shipments of waste directly from the point of generation to the Benton County, Washington facility should be filed pursuant Rule 6.10. For wastes that are to be managed (e.g., processed/treated) prior to shipment to the Benton County, Washington facility, an application should be filed pursuant to Rule 6.20. Export applications for wastes that are to be managed (e.g., incinerated) without subsequent land disposal should also be filed pursuant to Rule 6.20.

In section 6.3, items B through G must be provided separately for each generator whose waste is included in the application.

6.2 Filing of Application to Export Waste

Any person seeking the authorization of the Board pursuant to Article 7, Section B of the compact to export waste which was generated within the region for disposal at facilities other than the Benton County, Washington facility shall submit a written Application for Permission to Export Waste to the Executive Director. The application filed pursuant to this Rule 6.2 shall be accompanied by an Export Application Fee to be calculated as follows:

VOLUME	FEE
0-999 cubic feet	$200 or $2.00/cubic foot, whichever is greater
1,000 - 9,999 cubic feet	$1,000 + $1.00/cubic foot
10,000 - 99,999 cubic feet	$6,000 + $0.50/cubic foot
> 100,000 cubic feet	$46,000 + $0.10/cubic foot

MAXIMUM FEE NOT TO EXCEED $100,000

APPENDIX III
HEALTH AND
SAFETY PLAN

Health And Safety Plan
For The
Goodwin Treating Plant Remediation Project
Hobbs, New Mexico

Date Issued:
January 30, 2001

CONTENTS

CONTENTS (CONTINUED)

CONTENTS (CONTINUED)

CONTENTS (CONTINUED)

TABLES

ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
AHA	Activity Hazard Analysis
CFR	Code of Federal Regulations
CGI	Combustible Gas Indicator
CIH	Certified Industrial Hygienist
CPR	Cardiopulmonary Resuscitation
CRZ	Contamination Reduction Zone
CSP	Certified Safety Professional
dBA	Decibels
DOT	Department of Transportation
EPA	Environmental Protection Agency
EZ	Exclusion Zone
GFCI	Ground-Fault Circuit Interrupter
HASP	Health and Safety Plan
HSE	Health, Safety, and Environment
LEL	Lower Explosive Limit
MSDS	Material Safety Data Sheet
NEC	National Electrical Code
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
OVM	Organic Vapor Meter
PID	Photoionization Detector
PD	Project Director
PPE	Personal Protective Equipment
ppm	Parts per Million
RCRA	Resource Conservation and Recovery Act
SLM	Sound Level Meter
SSS	Site Safety Supervisor
SVOC	Semi-volatile Organic Compound
SZ	Support Zone
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
USCG	U.S. Coast Guard
VOC	Volatile Organic Compound

1.0 SITE SAFETY AND HEALTH PLAN OBJECTIVES

1.1 SAFETY PRIORITIES

This Health and Safety Plan (HASP) was developed in accordance with the requirements set forth in:

- 29 CFR 1910.120, Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response Standard;
- 29 CFR 1910, OSHA Safety and Health Regulations for General Industry;
- 29 CFR 1926, OSHA Safety and Health Regulations for Construction;
- National Institute for Occupational Safety and Health (NIOSH)/OSHA/U.S. Coast Guard (USCG)/U.S. Environmental Protection Agency (EPA): Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (October 1985); and
- BBC, International Contractor Health, Safety, and Environmental Handbook (HSE Handbook).

This HASP was prepared in order to provide safe procedures and practices for personnel performing project activities and community surrounding the Hobbs, New Mexico site. This HASP will refer to requirements discussed in OSHA regulations, the BBC, International Contractor HSE Handbook, and work plans prepared by BBC. All of these documents are incorporated into this HASP by reference. All addenda to this HASP will be developed as separate documents and transmitted to BBC for approval. The HASP and applicable addendum will also be available to all site workers and subcontractors.

1.2 ENVIRONMENT, SAFETY, AND HEALTH POLICIES AND GOALS

BBC recognizes the importance of health & safety and the environment in the workplace. An evaluation was performed of the potential hazards and the best way to mitigate these hazards, ensuring compliance with all corporate and regulatory requirements and minimizing all liabilities. For this project, BBC has adopted a philosophy of "zero accidents" and is committed to zero accidents as a goal. The zero accident goal includes the following criteria:

- The safety and health of the employee, visitor, and public and the protection of the environment is the first core value during the performance of work.
- All accidents are preventable.
- No unsafe act is tolerated or accepted.
- Site management requires total compliance with safety and health regulations and requirements and enforces such requirements.
- Managers and supervisors are proactive in safety and health.
- Line management is held responsible and acceptable for safety and health and coaches employees in safety and health philosophy.

2.0 STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

This section describes the health and safety responsibilities of the personnel assigned to the remediation project. All on-site personnel will be responsible for complying with the requirements of this HASP and all site-specific addenda to the HASP. The Project Director and Project Manager will be responsible for implementing the HASP and ensuring that its requirements are enforced. They will be assisted in this effort by health and safety staff.

2.1 SITE SAFETY SUPERVISOR

The Site Safety Supervisor (SSS) will serve as an advisor to the Project Director and Project Manager in matters regarding health and safety. The SSS will be certified in first aid, cardiopulmonary resuscitation (CPR), OSHA Hazardous Waste Site Operations, and OSHA Hazardous Waste Supervision. The SSS will be primarily responsible for the technical and administrative functions relative to health and safety during site activities. The SSS will have the following responsibilities:

- In conjunction with the Project Director and Project Manager, ensure all site activities are performed in a manner consistent with the HASP, and all site-specific addendums to the HASP;
- Direct health and safety activities on-site;
- Confirm that all BBC personnel and subcontractors designated to work on this project are qualified according to project-specific medical surveillance and training requirements;
- Report all incidents, accidents, and near misses to the Project Director and Project Manager;
- Maintain the onsite health and safety equipment;
- Inspect ongoing site activities and report any health and safety deficiencies to the Project Manager;
- Accompany or maintain communication with each work crew;
- Perform site monitoring to ensure that site personnel are wearing the proper level of personal protective equipment (PPE);
- Conduct initial site-specific safety training and regular safety briefings for all site personnel; and
- Serve as the Emergency Response Team Leader (ERTL).

The SSS will have the authority to take the following actions:

- Stop site activities if an "imminently dangerous" situation exists. The emergency situation will be reviewed immediately with the Project Director and the Project Manager.
- Direct personnel to change a work practice if it is determined to be hazardous to the health and safety of site personnel.

- Temporarily suspend an individual from field activities for an infraction of the HASP, pending a discussion with the Project Director and the Project Manager.

2.2 PROJECT DIRECTOR

The Project Director will be responsible for the overall direction, implementation, and enforcement of health and safety requirements. Other responsibilities will include:

- Ensure the project is performed in a manner consistent with the BBC Contractor HSE Handbook;
- Ensure that a HASP and all required site-specific addendum to the HASP are prepared and approved;
- Provide the SSS with project information for the development of the HASP;
- Monitor compliance with the HASP by BBC and subcontractor personnel;
- Ensure adequate resources are provided to the health and safety staff so that they may carry out their duties; and
- Ensure that all BBC personnel and subcontractors designated to work on this project are qualified according to project-specific medical surveillance and training requirements.

The Project Director has the authority to take the following actions.

- Determine personnel assignments on this project.
- Stop field activities if an "imminently dangerous" situation exists. The emergency situation will be immediately reviewed with the Project Manager and the SSS.

2.3 PROJECT MANAGER

The Project Manager will be responsible for the daily implementation and enforcement of the HASP and all site-specific addenda to the HASP. The Project Manager will be technically assisted on-site by the SSS. Other responsibilities will include:

- Ensure site activities are scheduled with adequate personnel and equipment resources to perform scheduled activities safely;
- Ensure adequate communication between field personnel and emergency response personnel is available, and
- Maintain communication with subcontractors.

The Project Manager will have the authority to take the following actions:

- Stop site activities if an "imminently dangerous" situation exists. The emergency situation will be reviewed immediately with the Project Director and the SSS.

2.4 WORK CREW/CONTRACT PERSONNEL

The work crew/contract personnel will have the following responsibilities:

- Immediately report any unsafe or potentially hazardous conditions to the SSS or Project Manager;
- Report *all* incidents, accidents, and near misses, no matter how minor they may seem, immediately to the SSS;
- Maintain knowledge of the information, instructions, and emergency response procedures contained in this HASP and applicable site-specific addenda to the HASP; and
- Comply with the requirements and procedures set forth in this HASP and with any addenda that are added.

3.0 TRAINING REQUIREMENTS

3.1 GENERAL HEALTH AND SAFETY TRAINING

All BBC and subcontractor personnel who will be performing remediation work within the Exclusion Zone (EZ) or Contamination Reduction Zone (CRZ) must comply with the training requirements outlined in OSHA 29 CFR 1910.120(e), OSHA 29 CFR 1926, and BBC Contractor HSE Handbook. The Project Director and SSS will verify and document that all site personnel meet the applicable OSHA training requirements before site work begins. Appendix A contains the form used for OSHA Training and Medical Documentation. Documentation regarding training certification will be kept in the on-site health and safety files.

3.2 40-HOUR INITIAL TRAINING

All employees who will be working inside the EZ or CRZ must have received, at the time of project assignment, a minimum of 40 hours of initial OSHA health and safety training for hazardous waste site operations. Personnel who have not met the requirements for initial training will not be allowed in the EZ or CRZ. A copy of each BBC and subcontractor site worker's 40-hour training certificate shall be forwarded to the SSS for review before site work begins.

3.3 ANNUAL REFRESHER TRAINING

Annual refresher training courses will be taken at a minimum of once a year. At the time of job assignment, all site workers must have received eight hours of refresher training within the past year unless forty hour course is less than one year old. This course is required of all field personnel to maintain their qualification for hazardous waste site work. A copy of each BBC and subcontractor site worker's most recent 8-hour refresher training certificate must be forwarded to the SSS for review before site work begins.

3.4 SUPERVISORY TRAINING

In accordance with OSHA 29 CFR 1910.120(e)(4), all on-site management and supervisors directly responsible for site workers, or who supervise employees engaged in hazardous waste operations, will have received at least eight additional hours of specialized training on managing hazardous waste operations at the time of the job assignment. A copy of the supervisory training certificate for each BBC and subcontractor supervisor shall be forwarded to the SSS for review before site work begins.

3.5 SITE-SPECIFIC SAFETY TRAINING

Before site activities begin at the start of each of the two phases of the project, all personnel assigned to the project will attend site-specific safety training. The SSS will conduct the training, which will specifically address the activities, procedures, and equipment applicable to the site's operation. The training will include the site layout, potential hazards, monitoring protocols, safety procedures, and emergency response services, as outlined in this HASP. Additionally, the SSS will thoroughly discuss exposure limits, employee rights and responsibilities, site contaminants and probability of exposure, required monitoring, and exposure control methods.

The training session will allow site personnel to clarify any issues they do not understand and will reinforce individual responsibilities regarding health and safety during site work. Site personnel will be

thoroughly trained about the potential hazards on-site. Site workers will also fill out the HASP Compliance Agreement and a Medical Data Sheet during this training session. The Medical Data Sheet will be kept in the on-site health and safety files and will be referenced in an emergency to assist with the treatment of the victim. Appendix A contains a copy of the Medical Data Sheet.

3.6 ON-SITE SAFETY BRIEFING

The SSS and Project Manager, or their designate, will provide daily on-site safety briefings (i.e., daily "tailgate" meetings) to assist personnel in safely conducting the scheduled work activities. The briefings will include weather-related information, instructions for new operations to be conducted, and safe work practices. The briefings may also provide an opportunity to identify safety-related performance deficiencies noted during daily activities or during a safety audit.

3.7 VISITOR TRAINING

Visitors must immediately report to the SSS for site admittance. Visitors who intend to visit the EZ or CRZ must present certification of initial 40-hour training, 8-hour refresher training, BBC Contractor HSE Handbook and be actively enrolled in a medical surveillance program (refer to Sec.5). The SSS will provide all visitors with site-specific safety training, which will address the activities, hazards, and emergency procedures applicable to current site activities. Visitors entering areas of activity will be required to comply with the provisions of this HASP and applicable site-specific addendum to the HASP.

3.8 FIRST AID AND CARDIOPULMONARY RESUSCITATION (CPR) TRAINING

The SSS will identify those individuals requiring first aid and CPR training to ensure that emergency medical treatment is available during site activities. During the 2nd phase of the project, at least two individuals (including the SSS) trained in first aid and CPR will always be available during site activities (at least one trained person will be required during the 1st phase of the project). First aid and CPR training will be consistent with the requirements of the American Red Cross Association, or equivalent and in accordance with *Occupational Exposure to Bloodborne Pathogens: Precaution for Emergency Responders* (29 CFR 1910.1030).

3.9 RESPIRATORY TRAINING AND TESTING

Before wearing a respirator, all employees must have medical documentation certifying they are capable of wearing respiratory protection. Additionally, all employees will be trained in the use of respiratory protection in accordance with BBC's Respiratory Protection Program.

3.10 CONFINED SPACE TRAINING

Where necessary site workers will be trained as specified by 29 CFR 1910.146 for employees who are required to supervise, standby, or enter confined spaces.

3.11 ADDITIONAL TRAINING

Persons involved in any aspect of the transportation of hazardous materials will be trained in accordance with 49 CFR 172, Subpart H. The SSS will ensure those personnel performing activities such as operation of excavation equipment, and packaging and handling of excavated material are qualified and appropriately trained. Additionally, all personnel working on-site will receive fire extinguisher training.

4.0 MEDICAL SURVEILLANCE PROGRAM

4.1 GENERAL MEDICAL SURVEILLANCE REQUIREMENTS

All personnel who will be performing work in the EZ, CRZ, or any other area where potential exposure to hazardous material exists must comply with medical surveillance requirements outlined in OSHA 29 CFR 1910.120(f). All personnel who will be performing work in the EZ or CRZ will be required to have passed the BBC medical surveillance examination, or equivalent, within 1 year before reporting to the site. Table 5-1 outlines the requirements of the project-specific Medical Surveillance Program. The Project Director and SSS will verify that all site personnel meet applicable medical surveillance requirements before site work begins.

4.2 SUBCONTRACTOR MEDICAL SURVEILLANCE REQUIREMENTS

Subcontractor personnel performing work in the EZ or CRZ must participate in a medical surveillance program that meets or exceeds the requirements outlined in Table 5.1. All subcontractor medical surveillance programs will be reviewed to ensure compliance with project requirements. At the time of job assignment, all subcontractor site workers must have received a medical surveillance examination within the past year. A copy of each subcontractor site worker's most recent medical clearance form must be sent to the SSS for review before site work begins.

4.3 MEDICAL SURVEILLANCE DOCUMENTATION

Documentation regarding medical surveillance clearance will be kept in the site health and safety files. This documentation will include a signed letter stating that each employee is certified by an occupational physician as capable of wearing respiratory protection and working on a hazardous waste site [in accordance with 29 CFR 1910.120(f)].

4.4 ACCIDENT/INCIDENT MEDICAL SURVEILLANCE

As a follow-up to an injury or possible chemical exposure above established exposure limits, all employees are entitled and encouraged to seek medical attention. All accidents and potential chemical exposures must be reported immediately to the SSS, who will arrange for the appropriate medical attention.

Employees returning to work from lost-time injury due to occupational injury or illness during the contract period must be evaluated by an occupational physician prior to allowing the worker access to the work site. A copy of the written statement shall be submitted to the SSS.

All accident reports shall prepared and submitted within 24 hours of the occurrence. The final incident investigation report shall be submitted within 72 hours.

Table 4-1. Medical Surveillance Examination Protocols

Module	History and Physical With Dipstick Urinalysis, Vision, and Vital Signs	Spirometry	Audiogram	EKG	Chest X-ray	Bio Chem
BASELINE						
Hazardous Waste	✓	✓	✓	*	✓	✓
Nonhazardous Prof.	✓					✓
Executives	✓	✓	✓	*	✓	✓
ANNUAL/PERIODIC						
Hazardous Waste	✓	✓	✓	*	5Y	✓
Nonhazardous Prof.	2Y					2Y
Executives	✓	✓	✓	*	6Y	✓
EXIT						
Hazardous Waste	✓	✓	✓		(1Y)	✓
Nonhazardous Prof.	✓					✓

Legend:

*	> 40 years of age or for medical indications
✓	Required for the indicated module
1Y - 6Y	Yearly frequency
( )	If not done within

BIOCHEM SCREEN

Complete blood count:	Chemical analysis:
White cells	Liver functions
Red cells	Kidney functions
Hemoglobin	Lipid metabolism
Hematocrit	Carbohydrate metabolism

5.0 HAZARD COMMUNICATION PROGRAM

This section identifies and assesses the potential health and safety hazards that may be encountered by site personnel during this project and prescribes required controls. Potential health and safety hazards can be classified into four distinctive categories: chemical, mechanical, physical, and biological hazards. The potential for encountering any hazard is dependent on whether it is present, the activities being performed and their location, and the season in which the activities occur. This Hazard Communication Program section is intended to communicate to personnel the general hazards and risks associated with this project site and provide guidance to manage site hazards. Wherever feasible, engineering and administrative controls will be used to reduce exposures to hazardous substances to below applicable limits and/or action levels and provide for the overall safety of employees. When engineering or administrative controls are not feasible or adequate, appropriate PPE will be used.

5.1 POTENTIAL ROUTES OF EXPOSURE

The potential routes of exposure for site personnel include:

- Inhalation of contaminants,
- Ingestion of contaminated particulate matter, and
- Dermal absorption of contaminants.

Due to the nature of the contamination, local features, and the type of site activities being performed by on-site personnel:

- There is a moderate potential for inhalation of volatile organic compounds (VOCs) for on-site workers.
- There is a moderate inhalation potential of contaminated particulate matter for on-site workers.
- There is a low ingestion potential of contaminated particulate matter for on-site workers.
- There is a low/moderate potential for skin contact with contaminated material for on-site workers.

Site personnel can reduce their exposure potential by:

- Using the proper PPE,
- Properly donning and doffing PPE,
- Practicing contamination avoidance,
- Following proper decontamination procedures, and
- Observing good personnel hygiene,

5.2 CHEMICAL HAZARDS

The chemical species identified and attributable to the project include, but may not be limited to, those listed in Table 6-1. The MSDS for chemicals to be handled on site are given in Appendix B.

Table 5-1. Potential Site Contaminants of Concern

Benzene	Methane
Toluene	Chromium
Ethylbenzene	Arsenic
Xylene	Hydrogen Sulfide
Benzo(a)anthracene	Mercury
Benzo(b)fluoranthene	
Benzo(a)pyrene	
Chrysene	
Dibenz(a,h)acridine	
Dibenz(a,h)anthracene	

5.3 PHYSICAL HAZARDS

A variety of physical hazards may be present during this project. These hazards are similar to those associated with any construction-type project. These hazards are not unique and are generally familiar to most field personnel. Task-specific hazards will be covered during daily safety briefings, as necessary.

5.3.1 Housekeeping (Slip/Trip/Fall Prevention)

As with any construction-type project, uneven work surfaces and other slipping or tripping hazards may be present. Proper site housekeeping, removal of trash, and orderly stacking and removal of materials will reduce slipping and tripping hazards. Proper site housekeeping will be the responsibility of all site personnel, and the SSS will make regular entries into the health and safety logbook at the end of each shift, indicating the work area is adequately clean before employee dismissal. The following Best Management Practices will be implemented to minimize slips, trips, and falls from occurring:

- Minimize clutter: If you do not need it, get rid of it or store it properly.
- Store materials properly: Do not stack items too high; ensure storage is secure from falling; be aware of fire and electrical hazards; report storage problems.
- Report maintenance problems: Report maintenance problems immediately—do not assume or expect someone else has/will report it.
- Keep walkways clear: Avoid blocking exits; report, mark, or clean up spills; avoid shortcuts, use only designated walkways and use handrails on stairs; close doors and file drawers.
- The SSS will complete a daily inspection of the work site. Increased inspections shall be based on the number of deficiencies identified.

General surface hazards, such as irregular surfaces, floor grating, wet surfaces, scaffolds, and ladders are common during construction activities. Employees will be made aware of such hazards and, when appropriate, areas will be flagged with caution tape (i.e., protrusions or irregular surfaces) or signs will be posted (i.e., wet and slippery surface) to warn individuals of potential walking/working surface hazards.

5.3.2 Contact with Energized Sources

During any site activities that involve work around live utilities, a potential exists for personnel, heavy equipment, or motor vehicles to come in contact with energized sources. Additionally, personnel could come in contact with energized parts of machinery or power tools. Contact with energized sources may result in fire, explosion, and/or electrocution. All work performed near electrical sources must be performed consistent with the OSHA electrical safety requirements found in 29 CFR 1926.400–1926.449.

Control efforts for this hazard include requirements that all equipment and power tools used on-site be properly maintained, positioned, guarded, and operated by competent personnel. Equipment will not be permitted within a 20-ft radius of energized sources with nominal voltage less than 300 kV. For energy systems with nominal voltage greater than 300 kV, the distance required will be regulated in accordance with 29 CFR 1926.400. The possibility of the presence of underground pipelines, electric wires, conduits, or vessels containing material under pressure will be investigated before any subsurface work (excavation, trenching, etc.) begins.

5.3.3 Electrical Work

A qualified electrician must perform site work involving electrical installation or energized equipment. All electrical work will be performed in accordance with the OSHA electrical safety requirements found in 29 CFR 1926.400–1926.449. Workers are not permitted to work near electrical power circuits unless the worker is protected against electric shock by de-energizing and grounding the circuit or by guarding or barricading the circuit and providing proper PPE. All electrical installations must comply with National Electrical Code (NEC) regulations. All electrical wiring and equipment used must be listed by a nationally recognized testing laboratory.

All electrical circuits and equipment must be grounded in accordance with the NEC regulations. The path to ground from circuits, equipment, and enclosures will be permanent and continuous. Ground-fault circuit interrupters (GFCIs) are required on all 120-V, single phase, 15- and 20-amp outlets in work areas that are not part of the permanent wiring of the building or structure. A GFCI is required when using an extension cord. GFCIs must be tested regularly with a GFCI tester.

Heavy-duty extension cords will be used; flat-type extension cords are not allowed. All extension cords must be the three-wire type and designed for hard/extra hard usage. Electrical wire or cords passing through work areas must be protected from water and damage. Worn, frayed, or damaged cords and cables will not be used. Walkways and workspaces will be kept clear of cords and cables to prevent a tripping hazard. Extension cords and cables may not be secured with staples, hung from nails, or otherwise temporarily secured. Bushings or fittings will be used to protect cords or cables passing through holes in covers, outlet boxes, etc.

In existing installations, changes in the circuit protection (in order to increase the load in excess of the load rating of the circuit wiring) are not allowed. All circuits will be protected against an overload.

All lamps used in temporary lighting will be protected from accidental contact and breakage. Metal shell and paper-lined lamp holders are not permitted. Fixtures, lamp holders, lamps, receptacles, etc. are not permitted to have live parts. Workers must not have wet hands while plugging/unplugging energized equipment. Plugs and receptacles will be kept out of water (unless they are approved for submersion).

5.3.4 Lock-Out/Tag-Out

Before a worker installs, services, or repairs a system where the unexpected release of stored energy could cause injury or electrocution, the circuits energizing the parts must be locked out and tagged. Only authorized personnel will perform lock-out/tag-out procedures. All workers affected by the lock-out/tag-out will be notified before and upon completion of the lock-out/tag-out procedures.

Lock-out/tag-out devices must be capable of withstanding the environment to which they are exposed. Locks will be attached in such a way as to prevent other personnel from operating the equipment, circuit, or control or from removing the lock unless they resort to excessive force. Tags will identify the worker who attached the device and contain information that warns against the hazardous condition that will result from the system's unauthorized startup. Tags must be legible and understood by all affected workers and incidental personnel. Table 6-2 presents the procedures for attaching and removing lock-out/tag-out devices.

Table 5-2. Lock-out/Tag-out Procedures

Step	Lock-out/tag-out procedures
1	Disconnect the circuits and/or equipment to be worked on from all electrical energy sources.
2	Ensure that the system is completely isolated so that it cannot be operated at that shut-off point or at any other location.
3	Release stored electrical energy.
4	Block or relieve stored non-electrical energy.
5	Place a lock on each shut-off or disconnect point necessary to isolate all potential energy sources. Place the lock in such a manner that it will maintain the shut-off/disconnect in the off position.
6	Place a tag on each shut-off or disconnect point. The tag must contain a statement prohibiting the unauthorized restart or reconnect of the energy source and the removal of the tag. The tag must also identify the individual performing the tag and lock-out.
7	Each worker who will be working on the system must place his or her own lock and tag on each lock-out point.
8	A qualified person must verify the system cannot be restarted or reconnected and de-energizing of the system has been accomplished.
Once the service or repairs have been made on the system:	
1	A qualified person will conduct an inspection of the work area to verify that all tools, jumpers, shorts, grounds, etc. have been removed so that the system can then be safely re-energized.
2	All workers stand clear of the system.
3	Each lock and tag will be removed by the worker who attached it. If the worker has left the site, the lock and tag may be removed by a qualified person under the following circumstances: a. The qualified person ensures the worker who placed the lock and tag has left the site; and b. The qualified person ensures the worker is aware the lock and tag has been removed before the worker resumes work on-site.

5.3.5 Hearing Conservation

Noise is a potential hazard associated with the operation of heavy equipment, power tools, pumps, or generators. Noise will be evaluated, demarcated, and controlled following OSHA Construction Industry Standards and the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value (TLV). 85 decibels (dBA) is considered an action level in the OSHA standard and is considered the TLV for an 8-hour exposure. Personnel performing activities in areas where noise levels could exceed 85 dBA will be required to wear hearing protection. As a general practice, hearing protection will be worn when operating noisy equipment, power tools, and generators or as directed by the SSS. The SSS may elect to monitor the work areas for noise levels.

5.3.6 Weather-Related Hazards

Weather-related hazards include the potential for heat or cold stress, exposure to ultraviolet radiation, electrical storms, treacherous weather-related working conditions, or limited visibility. These hazards correlate with the season in which site activities occur. Outside work will be suspended during electrical storms. In the event of other adverse weather conditions, the SSS and Project Manager will determine whether work can continue without endangering the health and safety of site personnel (refer to Sect. 12). Work in heat or cold will be performed in accordance with Sect. 6.4.11. Ultraviolet radiation caused by the sun can be a hazard during hot as well as cold clear days. Sunscreen will be used to minimize sunburn potential.

5.3.7 Hand and Power Tools

All hand and power tools will be maintained to OSHA standards or in a safe condition and in good repair. Hand and power tools will be used in accordance with 29 CFR 1926, Subpart I (1926.300–1926.307). Neither BBC nor its subcontractors will issue unsafe tools, and workers are not permitted to bring unsafe tools on-site. All tools will be used, inspected, and maintained in accordance with the manufacturer's instructions. Throwing tools or dropping tools to lower levels is prohibited. Hand and power tools will be inspected, tested, and determined to be in safe operating condition before each use. Periodic safety inspections of all tools will be conducted to ensure that the tools are in good condition, all guards are in place, and the tools are being properly maintained. Any tool that fails an inspection will be immediately removed from service and tagged with a "Do Not Use" sign until such time as the tool is repaired or removed from the site.

Workers using hand and power tools, who are exposed to falling, flying, abrasive, or splashing hazards will be required to wear appropriate PPE. Eye protection must always be worn when working on-site. Additional eye and face protection, such as safety goggles or face shields, may also be required when working with specific hand and power tools. Workers using tools in areas where there is a head injury hazard will wear hard hats. Hearing protection may be required when working with certain power tools. Workers using tools that may subject their hands to an injury, such as cuts, abrasions, punctures, or burns, will wear protective gloves. Loose or frayed clothing, dangling jewelry, or loose long hair will not be worn when working with power tools.

Electric power-operated tools will be double insulated or grounded and equipped with an on/off switch. Guards must be provided to protect the operator and other nearby workers from hazards such as nip points, rotating parts, flying chips, and sparks. All reciprocating, rotating, and moving parts of tools will be guarded if contact is possible. Removing machine guards is prohibited.

5.3.8 Manual Lifting

Back injuries are among the leading occupational injuries reported by industrial workers. Back injuries such as pulls and disc impairments can be reduced by using proper manual lifting techniques. Leg muscles are stronger than back muscles, so workers should lift with their legs and not with their back. Proper manual lifting techniques include the following steps:

- Plan the lift before lifting the load. Take into consideration the weight, size, and shape of the load.
- Preview the intended path of travel and the destination to ensure there are no tripping hazards along the path.

- Wear heavy-duty work gloves to protect hands and fingers from rough edges, sharp corners, and metal straps. Also, keep hands away from potential pinch points between the load and other objects.

- Get the load close to your ankles, and spread your feet apart. Keep your back straight and do not bend your back too far; instead, bend at your knees.

- Feel the weight; test it.

- Lift the load smoothly, and let your legs do the lifting. If you must pivot, do not swing just the load; instead, move your feet and body with the load.

- If the load is too heavy, do not lift it alone. Lifting is always easier when performed with another person. Assistance should always be used when it is available.

5.3.9 Work at Elevations—Fall Prevention

The site activities currently scheduled for this project may include work at elevated locations (work on ladders, etc.). OSHA-approved man-lifts and ladders will be used for access to elevated locations. Workers must wear a safety harness with a lanyard attached to at least two substantial anchorages. Appropriate fall protection must be provided at unguarded locations greater than 6 feet. Fall protection will consist of (1) cables attached to a full-body safety harness and connected to a fixed, stable anchor or (2) safety nets. The selection of fall protection equipment will be based on the type of work being performed; the work environment; the weight, size, and shape of the user; the type and position of the anchorage; and the length of the lanyard. All fall protection equipment will comply with 29 CFR 1926.104, 1926.105, and 1926.556.

The manufacturer's recommendations will be followed for fitting, using, adjusting, inspecting, testing, and caring for fall protection equipment. Before workers use a fall protection device, they will receive instructions on the potential fall hazards and how to inspect, adjust, use, and care for the fall protection equipment. Fall protection equipment must be inspected each day, before use, to determine whether it is in safe working condition. If the fall protection equipment is found to be defective, it will be immediately removed from service and tagged with a "Do Not Use" sign until repaired or removed from the site. Any fall protection equipment actually used in a fall will be immediately removed from service and will not be used again.

Lifelines will be secured above the point of operation to a support capable of holding a minimum dead weight of 5400 pounds/person. Vertical and horizontal lifelines and lanyards will have a minimum tensile strength of 5000 pounds. Self-retracting lifelines and lanyards must automatically limit the wearer's free fall distance to less than 2 feet and have a minimum tensile strength of 3000 pounds. Only one person is allowed per lifeline. The lifeline must be protected against being cut or abraded.

Body harness systems must decelerate and bring the wearer to a complete stop within 42 inches, excluding lifeline elongation. When stopping a fall, the body harness system may not produce an arresting force on the wearer of more than ten times the worker's weight, or 1800 pounds (whichever is lower). The anchorage point for the lanyard should be located above the wearer's body harness attachment. The lanyard will be constructed of at least ½-inch nylon, or equivalent, with a maximum length to provide for a fall of no more than 6 feet.

One-third of worker deaths in construction result from falls. Many falls occur because ladders are not placed or used safely. Ladder use will comply with OSHA 1926.1053–1926.1060, including the following safety requirements:

- Choose the right ladder for the task—the proper type and size, with a sufficient rating for the task.
- Check the condition of the ladder before climbing:
  - Do not use a ladder with broken, loose, or cracked rails or rungs.
  - Do not use a ladder with oil, grease, or dirt on its rungs.
  - The ladder should have safety feet.
- Place the ladder on firm footing, with a four-to-one pitch.
- Support the ladder by:
  - Tying it off,
  - Using ladder outrigger stabilizers, or
  - Having another worker hold the ladder at the bottom.
- If another worker holds the ladder, they must:
  - Wear a hard hat,
  - Hold the ladder with both hands,
  - Brace the ladder with their feet, and
  - Not look up.
- Keep the areas around the top and bottom of the ladder clear.
- Extend the top of the ladder at least 36 inches above the landing.
- Climb the ladder carefully—facing it—and use both hands.
  - Use a tool belt or hand-line to carry material to the top or bottom of the ladder.
  - Wear shoes in good repair with clean soles.
- Inspect the ladder every day, before use, for the following problems:
  - Rail or rung damage;
  - Broken feet;
  - Rope or pulley damage;
  - Rung lock defects or damage; and
  - Excessive dirt, oil, or grease.
- If the ladder fails inspection, it must be removed from service and tagged with a "Do Not Use" sign.

Ladders with nonconductive side rails must be used when working near electrical conductors, equipment, or other sources. Ladders will not be used horizontally for platforms, runways, or scaffolds.

5.3.10 Heat Stress and Cold Stress

Heat stress is a significant potential hazard during the warmer months. Heat stress manifests itself as one of three conditions: heat cramps, heat exhaustion, or heat stroke. Heat cramps are brought about by a prolonged exposure to heat. As an individual sweats, water and salts are lost by the body, triggering painful muscle cramps. The signs and symptoms of heat cramps include:

- Severe muscle cramps, usually in the legs and abdomen;
- Exhaustion, often to the point of collapse; and
- Dizziness or periods of faintness.

First aid treatment includes shade, rest, and fluid replacement. If available, the individual should drink electrolyte-replacement fluids (e.g., Gatorade, Power Aid, 10-K). The individual should recover within half an hour.

Heat exhaustion usually occurs in a healthy individual who has been exposed to excessive heat while working or exercising. Blood collects near the skin in an effort to rid the body of excess heat. The signs and symptoms of heat exhaustion include:

- Rapid and shallow breathing;
- Weak pulse;
- Cold and clammy skin, with heavy perspiration;
- Skin appears pale;
- Fatigue, weakness, and/or dizziness; and
- Elevated body temperature.

First aid treatment includes cooling the victim, elevating the feet, and replacing fluids. If the individual has not recovered within half an hour, transport him/her to the hospital for medical attention.

Heat stroke occurs when an individual is exposed to excessive heat and their body systems become overwhelmed by heat and begin to stop functioning. This condition is a *medical emergency*, requiring the immediate cooling of the victim and transport to the hospital immediately. The signs and symptoms of heat stroke include:

- Victim has stopped sweating;
- Dry, hot, red skin;
- Body temperature approaching or above 105 °F;
- Dilated (large) pupils; and
- Loss of consciousness (victim may lapse into a coma).

Local weather conditions may produce an environment that will require restricted work schedules in order to protect employees. The SSS will be observing workers for any potential symptoms of heat stress. Adaptation of work schedules and training on recognition of heat stress conditions should help prevent heat-related illnesses from occurring. Heat stress prevention controls include:

- Allow workers to become acclimatized to the heat (3 to 6 days),
- Provide shaded or air-conditioned break areas,
- Provide sunscreen to prevent sun burn,
- Provide drinking water and electrolyte-replenishing fluids, and
- Monitor affected workers wearing PPE for heat stress with periodic heart rate and/or oral temperature checks when the ambient air temperature exceeds 70 °F in the work area. Monitor all workers without PPE when the ambient air temperature exceeds 90 °F. Monitor any worker with a history or likelihood of heat stress.

Cold stress is a danger at low temperatures and when the wind chill factor is low. Cold stress is generally described as a local cooling (frost nip, frostbite, and freezing) or a general cooling (hypothermia). Personnel working outdoors in temperatures at or below freezing may be subject to local cooling. Areas of the body that have a high surface area-to-volume ratio, such as fingers, toes, and ears, are the most susceptible.

The three categories for local cooling include:

- Frost nip: Characterized by a blanching or whitening of the skin.
- Frostbite: Skin has a waxy or white appearance and is firm to the touch, but the tissue beneath is resilient.
- Freezing: Skin tissue is cold, pale, and solid.

Frost nip and frostbite first aid includes covering the affected area with warmth and retreating to a warm area. Frozen tissue is a *medical emergency*, and the victim must be transported to the hospital immediately.

General cooling (hypothermia) occurs when exposure to cold reduces body temperature. With prolonged exposure, the body becomes unable to maintain its proper internal temperature. Without treatment, hypothermia will lead to stupor, collapse, and death. The signs and symptoms of mild hypothermia include shivering, numbness and drowsiness.

First aid for mild hypothermia includes using heat to raise the individual's body temperature. Heat may be applied to the victim in the form of heat packs, hot water bottles, and blankets. The signs and symptoms of severe hypothermia include:

- Unconsciousness,
- Slowed respiration or respiratory arrest,
- Slowed pulse or cardiac arrest,
- An irrational or stuporous state, and
- Muscular rigidity.

First aid for severe hypothermia includes handling the victim very gently; rough handling may set off an irregular heartbeat. Do not attempt to rewarm the severely hypothermic victim; rewarming may cause the development of an irregular heartbeat. Severe hypothermia is a *medical emergency*, and the victim must be transported to the hospital immediately.

Prevention of cold stress is a function of whole body protection. Adequate insulated clothing will be worn when the air temperature drops below 40 °F. Reduced work periods may be necessary in extreme conditions to allow adequate rest periods in a warm area. Other cold stress prevention controls include:

- Changing clothes when work clothes become wet with sweat,
- Avoiding caffeine (which has diuretic and circulatory effects), and
- Ensuring workers drink warm, sweet drinks or soups to increase their caloric intake and reduce the possibility of cold weather dehydration.

5.3.11 Confined Space Entry

A confined space is any area that (29 CFR 1926.650 Subpart P-excavations):

- Has a limited means of entry or exit,
- Is unsuitable for continuous human occupancy,
- Contains (or may possibly contain) an accumulation of toxic or flammable contaminants,
- Contains (or may possibly contain) an oxygen-deficient atmosphere, or
- Contains a material with the potential for engulfment of a worker.
- Trenches excavated deeper than 4 feet could be considered to be confined spaces.

The site activities currently scheduled for this project may include confined space entry during both Phase I (excavation pit) and Phase II (enclosure). If a confined space entry must be performed, a confined space entry program will be implemented in accordance with 29 CFR 1910.146. Confined space entry programs include:

- An entry permit,
- Confined space training for entrants and standby rescue personnel,
- Additional PPE, and
- Air monitoring.

Workers involved in confined space entry must be familiar with all hazards, equipment, procedures, and safeguards used during their entry task.

5.3.12 Excavation and Trenching

The site activities currently scheduled for this project include excavation or trenching activities. Excavations will be performed in accordance with 29 CFR 1926 Subpart P and applicable BBC Contractor HSE Handbooks. An excavation is any man-made cavity, depression, or penetration. Depending on its depth, width, and the presence of a hazardous atmosphere, an excavation may also be considered to be a confined space.

Excavations are defined to include trenching. A trench is a narrow excavation in which the depth is greater than the width, and the width is not greater than 15 feet. Trenches excavated deeper than 4 feet could be considered to be a confined space.

Before starting any excavation, the possibility of the presence of underground pipelines, electric wires, conduits, or vessels containing material under pressure will be investigated. The Project Director and/or Project Manager will coordinate with local utility representatives to locate and shut off existing utilities. All surface encumbrances that will create a hazard to workers will be removed or supported.

BBC will designate a "competent person" for all excavation work performed during this project. An individual meets the requirements of a "competent person" by having completed training in excavation safety contained in the OSHA 510 Construction Safety Training Course, or equivalent. The individual assigned to the role of competent person for this project will have extension construction experience as well as the ability to identify soil types and the knowledge of required slopes.

The competent person will inspect excavations, adjacent areas, and protective systems on the following schedule and document findings:

- Daily, before work in or around the excavation begins;
- After every rain storm or other hazard-increasing occurrence; and
- As needed throughout the work shift as conditions change.

If a hazardous condition is noted, all endangered workers must be immediately removed from the hazard, and all work in the excavation stopped until the necessary corrections have been made.

The following safety controls will be implemented if excavation activities proceed beyond 4 feet in depth:

- An Excavation Work Plan will be required.
- The SSS will monitor excavations that may contain toxic or oxygen-deficient atmospheres before each shift begins and at periodic intervals during the shift. Results of air monitoring will be documented in the SSS's logbook. Additional safeguards may be necessary when excavating areas that may contain a hazardous atmosphere.
- The sides of all excavations in which workers may be exposed to danger from shifting soil will be guarded by a protective system. Appendices B and C of 29 CFR 1926 Subpart P provide information on proper sloping, shoring, and benching protective systems. Excavations less than 5 feet in depth which do not have a potential for a cave-in do not require a protective system.

- If the excavation endangers the stability of adjacent structures, support systems such as shoring, bracing, or underpinning will be provided.

- Personnel will not work in excavations in which there is accumulated water, or water is accumulating, unless adequate precautions have been taken to protect workers against the hazards caused by water accumulation.

- Workers will be protected from loose rock or soil that could fall from an excavation face.

- Excavated soil will be placed at least 2 feet from the edge of the excavation on poly sheets and covered.

- Workers exposed to public vehicular traffic will wear warning vests.

- When mobile equipment is operated near an excavation, or required to approach the edge of an excavation, a warning system (e.g., barricades, hand signals, mechanical signals, and/or stop logs) will be used.

- A stairway, ladder, ramp, or other safe means of exit will be located in trench excavations that are greater than 4 feet in depth. The means of exit will require no more than 25 feet of lateral travel for each person in the excavation.

- Workers are not permitted underneath loads handled by lifting or excavating equipment.

- At the end of each workday, the Project Manager and/or SSS will ensure that flagging or barriers are set up at the excavation area to prevent unauthorized personnel from falling into the excavation during non-working hours. The barriers will remain in place until the excavation has been back-filled.

5.3.13 Heavy Equipment and Motor Vehicle Operation

Only qualified personnel will operate heavy equipment and motor vehicles. Equipment will not be operated in a manner that will endanger persons or property. All heavy equipment and motor vehicles will be operated in accordance with the manufacturer's instructions, 29 CFR 1926 Subpart O.

The following inspection and repair controls will also be implemented during this project:

- The operator will inspect equipment and vehicles on a daily basis, before starting work. The inspector will maintain records of tests and inspections on-site using an Equipment Daily Inspection Checklist. All heavy equipment backup alarms and exhaust systems will be checked daily and confirmed to have no embers or sparking.

- Any unsafe equipment or vehicles will be removed from service until safety defects can be corrected. Defective equipment will be tagged with a "Do Not Operate" sign until repairs have been made or the equipment is removed from the project site.

- Equipment will be shut down and locked out before maintenance or repairs are made.

- Any cracked or broken window, windshield, or door glass will be replaced.

Operators will follow these rules:

- Seat belts will be worn when operating moving equipment.
- Motor vehicles and heavy equipment will be shut down during refueling operations.
- The on-site speed limit is no more than 10 mph for all vehicles.
- Operators will not leave their equipment unattended while it is running.
- Whenever equipment is parked, the parking brake will be set. If the equipment is parked on an incline, in addition to setting the parking brake, the wheels will also be chocked.
- Operators will be trained and experienced in the use of their equipment.
- Vehicles or equipment will not be operated in a careless or unsafe manner.
- Personnel will wear appropriate PPE when working with heavy equipment. Dermal protection must fit properly and be taped to prevent "caught on" or "caught between" hazards.
- Passengers or "riders" are not allowed on equipment.

Required equipment features:

- All bulldozers, tractors, forklifts, or similar equipment used in remediation operations will be provided with guards, canopies, or grills to protect the operator from falling or flying debris.
- All equipment and vehicles will have an audible backup alarm and an audible warning device (i.e., a horn).
- Each vehicle and piece of equipment will have a portable fire extinguisher rated not less than 10-B: C.
- Equipment will be properly guarded.

When working with moving equipment:

- One designated watch person will give signals to the operators of both equipment and vehicles in any work area. This person must be in the operator's line of sight anytime the equipment is moving.
- All personnel will stay clear of the operational area of the equipment. Workers are not permitted to stand directly underneath any load or piece of equipment (man-lift, backhoe bucket, crane load, etc.). Workers will not touch equipment while running due to pinch/crush potential of moving parts.
- Work areas will be adequately illuminated. To aid visibility, workers in traffic areas will don high visibility clothing or vests.
- Workers are prohibited from riding in equipment buckets and booms. Only workers needing access to the large equipment work area will be allowed in the area.

5.3.14 Flammable and Combustible Materials

Outdoor storage of flammable/combustible liquid containers (not more than 60 gallons each) will not exceed 1,100 gallons in any one area. All flammable and combustible liquids will be stored outdoors, in a well-ventilated area, and away from excessive heat or direct sunlight. These liquids will not be stored in areas used for exits, stairways, or aisles. Material that reacts with water will not be stored near flammable or combustible liquids. All sources of ignition are prohibited in this area, including smoking, cutting and welding, hot surfaces, open flames, sparks (static, electrical, and mechanical), and frictional heat. "Flammable Liquids" and "No Smoking or Open Flames" signs will be posted in the storage area. At least one portable fire extinguisher rated not less than 20-B:C will be located within 10 feet of the entrance to the storage area, and at least one similar fire extinguisher will be located between 25 and 75 feet outside the storage area.

Each fueling area will have at least one portable fire extinguisher rated not less than 20-B:C within 75 feet of each pump and dispenser. Smoking and open flames are prohibited in fueling areas. Motors will be turned off before equipment is refueled. At least one portable fire extinguisher rated 20-B:C will be located on all vehicles transporting or dispensing flammable or combustible liquids.

Flammable and combustible liquids should only be handled in areas that have adequate ventilation. Workers are not permitted to use liquids having a flash point greater than 100 °F as a cleaning/degreasing fluid. Workers should change as soon as possible if flammable or combustible liquid is spilled on their clothing.

Dispensing areas (for transfer of greater than 5 gallons) will be separated from other work areas by at least 25 feet. Spills in these areas will be controlled by using drainage, diking, or absorbent material. Flammable liquids will only be transferred when the two containers are electrically interconnected (i.e., bonded). When dispensing flammable and combustible liquids into smaller portable containers, only approved safety containers equipped with backflash arresters will be used.

Items with fire fueling potential will be identified and, if not in use, stored outside of flammable/combustible materials storage areas. Such items include wooden items (pallets, 2x4s, etc.), paper (boxes), plastics (bottles), and oils (lubricants).

Handling, storage, and use of flammable and combustible items will be in compliance with 29 CFR 1926.152. Material safety data sheets (MSDSs) for hazardous materials brought on-site will be kept on-site and will remain readily accessible to BBC employees and subcontractors.

5.3.15 Hot Work

The activities currently scheduled for this project may require hot work during assembly of the treatment facility or for size reduction of equipment during demobilization activities. If hot work becomes necessary, it will be performed in accordance with 29 CFR 1926.350–1926.354 and the BBC Contractor HSE Handbook. Hot work includes oxygen-acetylene welding and cutting, arc welding and cutting, gas metal welding, propane torches, and grinding. All hot work permits must be completely filled out and approved by the SSS before any hot work activities begin.

Welding, cutting, or hot work areas will be well vented to prevent fumes from becoming a nuisance or problem. Blowers should be employed to blow fumes away from workers and into areas that will not affect others. If proper ventilation cannot be applied to properly control fumes, workers that may be affected by such shall don appropriate respirators. If hot work is being performed on potentially

contaminated items that could induce hazardous/toxic fumes, workers adjacent to and performing the hot work will don appropriate respirators.

5.3.16 Fire Protection and Prevention

This project falls under the classification of a temporary facility, thus having less stringent fire protection requirements than that of a permanent facility. However, the fire safety program design of the temporary treatment facility and for worker safety must comply with the Standard Building Code, OSHA Subpart F. Storage of combustibles must comply with 29 CFR 1910, 29 CFR 1926, the Standard Building Code and the National Fire Protection Association (NFPA). The fire safety design will be such that it meets relevant requirements. This section will focus on all other aspects of fire protection and prevention relevant to this project.

Management is responsible for executing and adhering to the procedures in this program. The SSS is responsible for ensuring all on-site employees are familiar with this fire protection and prevention plan and any employees responsible for maintenance/inspections are properly trained. The SSS will conduct daily inspections of all fire protection systems (fixed or portable) and storage areas with fire potential in their jurisdiction. The SSS will check and document on a weekly basis all fire protection systems and equipment storage areas to ensure they are operational and no site fire risk exists.

Attempts will be made to prevent the possibility of a fire (e.g., keep items at safe distance from electrical connections, store flammable materials in fireproof cabinet, etc.). However, if a fire develops, attempts should be made to extinguish the fire only if conditions are such that it can be performed safely. All emergency telephone numbers (which includes the fire department telephone number) will be posted next to the on-site telephones. Access will always be maintained to the site for emergency response vehicles (i.e., no blockage of roadways). Site personnel will be instructed to report any fire incident to the Project Manager and/or SSS, no matter how minor.

Fire extinguishers appropriate in size and classification will be present, readily accessible, and ready for use in all areas where there is potential for fires. The location and type of portable fire extinguisher will be in accordance with the requirements of NFPA 10. At least one multipurpose Class ABC portable fire extinguisher will be mounted in a clearly marked area in each office trailer and change house. The treatment facility will have at least two multipurpose Class ABC fire extinguishers located within the containment area. At least one portable multipurpose Class ABC fire extinguisher will be mounted in each site vehicle and secured to prevent physical damage to the extinguisher and injury to passengers.

Potential for an incident due to a fire is believed to be minor due to the nature of the project. However, some potential fire hazards associated with this project and methods for prevention are as follows:

- Kitchen equipment (microwaves, coffee brewers, refrigerators): Check electrical cords to ensure they are in good shape. Do not use equipment that has frayed cords or is not functioning properly. Notify the manager immediately of any equipment deficiencies.

- Electrical: Open or frayed wires pose a fire threat and will be reported immediately. Computers or other related equipment will be equipped with a surge protector. Even if no smoke is observed, burning smells will be reported immediately and the area investigated to determine whether there is fire potential.

- Storage: Ensure materials are properly stored (i.e., flammable or chemical cabinets) and marked. Ensure incompatibles in the same area are separated by minimum distances and by suitable fire-rated

construction. Examples of materials that require separation between each other are flammable and combustible liquids, corrosive materials, oxidizers, and water reactives. Such items will be stored outside in accordance with OSHA standards.

- Temporary Heaters: Keep at a safe clearance and use only as recommended by the manufacturer.
- Fueling: Do not fuel equipment while running. Allow equipment to cool before fueling. Ensure only appropriate fueling containers/equipment are used. Ensure proper bonding for portable installations.
- Smoking will be prohibited within the exclusion zone and only permitted in designated areas.

Building exits and pathways to exits will be kept clear and unobstructed. Building exit doors will not be locked while occupied and shall not require more than one action to open. Emergency lights (when required), exit signs, and other exit marking systems will be maintained in good operating condition.

No controlled open fires or hot processes are thought to be required for this project. Personnel performing any hot work and associated fire watches will don fire-resistant PPE. Fire watches for welding, cutting, grinding, or open flame activity will be performed by authorized personnel in designated cutting and welding areas. Adequate ventilation will be provided for all cutting and welding work.

Torches, regulators, pressure-reducing valves, and manifolds will be Underwriter's Laboratories, Inc.-listed or Factory Mutual approved. Oxygen-fuel gas systems (e.g., oxygen or acetylene welders) will be equipped with listed and/or approved backflow valves and pressure relief devices. All cutters, welders, helpers, and fire watch personnel will wear eye protection and protective clothing, as appropriate. Workers adjacent to arc welding areas will be protected from the rays by screens or shields.

Combustible materials, equipment, or building surfaces within 20 feet of or below the work must be covered with fire-resistant welding blankets, moved, or wetted down. Openings in ducts, tanks, or other confined spaces within 20 feet of the work shall also be covered or plugged. Fire-resistant welding blankets can be used for electric arc operations instead of wetting the work down. Mechanical ventilation shall be used continuously when cutting or welding in or on a confined space. See Sect. 6.3.15 for more details on hot work practices.

5.3.17 Compressed Gases

Only properly trained personnel will handle compressed gases. Each cylinder that is received at the work site must have the contents identified by stenciling or labels, the appropriate DOT label, a valve protection cap (if so designed), and a current hydrostatic test date, if applicable. Gas cylinders not meeting these requirements will not be accepted.

Before connecting a regulator, the cylinder valve shall be opened slightly and closed immediately to blow out dust or debris from the valve assembly. The valve will be aimed away from the operator and other personnel during this maneuver. Before opening the cylinder valve, fully close the hand control knob on the regulator. Always open a cylinder valve slowly. Never force a cylinder valve. If the valve cannot be opened by the wheel or small wrench provided, the cylinder should be returned.

Relieve all pressure from a hose that is not being used. To shut down a system, close the cylinder valve and relieve the pressure from the entire system. Never drop cylinders or permit them to strike each other. Cylinders in use and in storage will be chained, strapped, or fixed in a manner that prevents them from falling. Cylinders may be stored in the open, but will be protected against extremes of weather and from

the dampness of the ground to prevent rusting. During the summer, cylinders stored in the open will be shaded against the continuous direct rays of the sun. The valve protection cap will be left on each cylinder until the cylinder has been secured against a wall or bench or placed in a cylinder stand and is ready to be used. Avoid dragging, rolling, or sliding cylinders whenever possible. The cylinder will be moved by using a suitable hand truck. Do not use white lead, oil, grease, or any other non-approved pipe-sealing compound to make a joint in an oxygen system. Never interchange regulators and hose lines among different types of gases.

Intra-site moving of large cylinders will be by cylinder carts. Cylinders moved in pickups or flatbed trucks will be secured in an upright position. All cylinders will be considered full unless properly identified as empty by the user. Empty cylinders should be returned to the storage area and not be permitted to accumulate at or near the workstation. Gas cylinder caps shall not be used to lift cylinders. Never tamper with safety devices in valves or cylinders.

Cylinders, storage areas, and manifold installations will be dry, well ventilated, and located away from ignition sources or excessive heat, including direct sunlight. Cylinders will be stored upright, and properly secured with chains, bars, brackets, or other approved devices. Oxygen cylinders are stored a minimum of 20 feet from fuel gas cylinders or combustible materials, or separated by a barrier 5 feet high having a fire resistance rating of at least ½ hour. Empty cylinders will be stored separately from full cylinders. Both storage areas will be clearly marked. Gas cylinders will not be subjected to temperatures in excess of 125 °F.

5.3.18 Illumination

Site activities will only be conducted during daylight hours unless adequate lighting is available. The minimum lighting requirements for work areas will meet those listed in 29 CFR 1926.56, Table D-3, while any work is in progress.

5.3.19 Work On/Beside Water Bodies

Remediation of the site will not require workers to perform activities on and adjacent to bodies of water.

5.3.20 Ergonomics

The interaction of personnel with their working environment at this site may also present potential hazards, such as the incorrect lifting of heavy loads, equipment vibrations, improper body positioning, and negotiation of physical obstacles. When lifting equipment or heavy objects, personnel should always position themselves properly, maintain a straight back, and lift from the legs. They shall rely on the buddy system for assistance in lifting loads that are too heavy for one person. Back strain, the most common ergonomic hazard in the field, may be easily avoided provided that site workers ask for assistance when they need it. The SSS will visually monitor site activities to assist personnel in avoiding ergonomic hazards.

5.4 BIOLOGICAL HAZARDS

Biological agents that may cause health hazards are very diverse; consequently, their health effects are also diverse. Biological hazards include etiologic agents; bloodborne pathogens; poisonous plants, insects, and animals; and indigenous pathogens. The effects range from mild skin irritation to debilitating or life-threatening illness. Unfortunately, many biological agents are too small to be observed or arise from seemingly harmless sources.

During site activities, workers can potentially be exposed to bloodborne pathogens when rendering first aid or CPR. Poisonous plants, insects, and reptiles may also be encountered during cleanup operations. Avoiding contact with biological agents is the best way to prevent adverse health effects caused by them. Recognition of potential hazards is essential. When avoidance is impractical or impossible, PPE and personal hygiene will be used to prevent adverse effects.

Site health and safety briefings will include protective measures to be taken by workers. In addition, the SSS will evaluate the potential for exposure for each job task, advise site personnel, and adjust the site briefings accordingly.

5.4.1 Animal and Insect Bites

The site is located in a residential area in Hobbs, New Mexico. The possibility of encountering wildlife is moderate and will be communicated to all site personnel during the initial site-specific safety training. Workers will be warned to avoid wildlife and to report any encounters.

Rattlesnakes are relatively common in New Mexico. They belong to the family of pit vipers and are characterized by elliptical pupils, one to six fangs (usually two), one row of plates beneath the tail, and a head that is wider than the neck and body. The venom of these snakes affects the circulatory system. All reactions from snakebite are aggravated by fear and anxiety.

Two types of poisonous spiders may be present in this area: the black widow and the brown recluse. The black widow spider has a shiny black body about the size of a pea, with a red or yellow hourglass-shaped mark on its abdomen. It weaves shapeless webs in dark, undisturbed areas. A bite may result in illness, pain, and possibly death from complications, but usually not from the bite itself. The brown recluse spider is approximately 3/8-in. in size, with a dark, violin-shaped mark on its back. It weaves a sticky, irregular web. Within a few hours of being bitten, the victim's skin around the bite becomes red and swollen. In time, most of the tissue dies, leaving a deep sore that may take months to heal and may leave a scar. A few persons suffer an allergic reaction to its poison that could result in death. First aid measures for a spider bite and other insect bites/stings are discussed in Section 12.14.

Personnel may also encounter a number of biting or stinging insects during site activities. Insects that may be present on-site include bees, wasps, mosquitoes, scorpions, and ticks. The SSS will inform personnel about the potential insect hazards and preventative measures, such as the use of insect repellant. Site workers who have a history of allergic reactions to bee stings should inform the SSS using the Medical Data Sheet completed during the initial site-specific safety training. The SSS will provide first aid treatment in the event of an insect bite or sting.

Deer tick bites may result in the transmission of Lyme Disease. A characteristic rash may develop a few days to a few weeks after the bite of an infected tick. The rash generally looks like an expanding red ring with a clear center, but it can vary from a blotchy appearance to red throughout the rash. However, it is important to note that some victims *never* exhibit a rash. Lyme Disease symptoms include flu-like symptoms such as a headache, stiff neck, fever, muscle aches, and/or general malaise. If Lyme Disease is not treated early with antibiotics, the early symptoms may disappear, but more serious problems may follow. Long-term effects of Lyme Disease may include arthritis of the large joints, meningitis, neurological complications (such as numbness or tingling of the extremities, loss of concentration and memory retention, Bell's Palsy), withdrawal and lethargy, or cardiac symptoms. Personnel should use the following prevention tactics:

- Avoid walking through brush, woods, or grassy areas; try and avoid contact with plants if you must walk through these areas.

- Dress in light-colored clothing to make adhering ticks more visible. Wear long-sleeved shirts and tuck pants into socks.

- Use a tick repellant containing permethrin or dimethyl-m-toluamide (DEET). However, you should never use tick repellant containing more than 30% DEET, and all tick repellant should be sprayed on clothing (and allowed to dry) and not directly on your skin.

- Perform self-searches each day to check for ticks.

Initial first aid treatment for removing ticks from the skin is described in Sect. 12.14.

5.4.2 Bloodborne Pathogens

Employees are at risk of contracting infectious diseases each time they are exposed to bloodborne pathogens. Any exposure incident may result in infection and subsequent illness. Since it is possible to become infected from a single exposure incident, exposure incidents should be prevented whenever possible. To ensure employees are effectively informed concerning potential workplace health hazards, the SSS will review the requirements set forth in 29 CFR 1910.1030. If deemed necessary, the SSS will establish an exposure control plan. The purpose of this plan is to identify those tasks and procedures where occupational exposure to bloodborne pathogens may occur, to identify the positions whose duties include those tasks, and to implement controls that will significantly reduce the risk of infection by bloodborne pathogens. The plan also includes provisions for affected employees to receive Hepatitis B vaccinations, training, and, if necessary, confidential medical evaluations and follow up.

5.4.3 Hanta Virus

The Hanta virus can be spread through mouse and rat feces. Any evidence of rodent infestation should be reported immediately to the SSS.

6.0 HAZARD/RISK ANALYSES

Appendix C presents Activity Hazard Analyses (AHAs) for each of the tasks scheduled for the project. Each AHA will be reviewed and discussed by all site workers involved with the specific task. If a task is planned for which there is no AHA, an analysis will be prepared and reviewed by site personnel. This review will be completed before starting the site-specific task, unless an emergency situation arises that requires an immediate response.

The AHAs will typically be reviewed at the site-specific safety training and will be addressed periodically during the daily on-site safety briefing. The health and safety hazards as presented in Section 6.0 (i.e., chemical/mechanical/physical/biological) will be discussed for the appropriate work. Site workers will be encouraged to discuss potential hazards and identify ways in which they suspect an accident could occur. The site workers may discuss accident scenarios and will be encouraged to suggest appropriate control measures. The meeting and topics discussed will be documented by the SSS, using a Meeting Attendance Form (Appendix A). This project tasks will include:

- Project mobilization and construction of enclosure (Table C-1);
- Excavation of contaminated soils & surrounding soils (Table C-2);
- Transporting spoils to staging area. (Table C-3);
- Transfer of spoils to trucks for off-site transport (Table C-4);
- Decontamination of equipment and temporary facilities (Table C-5);
- Area Restoration (Table C-6); and
- Demobilization (Table C-7).

7.0 SITE CONTROL MEASURES

7.1 SITE ZONES

The SSS will be responsible for establishing the site control zones, as necessary, around work areas that present hazards. Implementation of the site control zones will help minimize the number of employees who could potentially be exposed to site contamination and the potential spread of that contamination. The SSS will monitor the implementation of the required site control work rules and will report any deviations from prescribed practice to the Project Manager or stop work, as appropriate. A log will be kept of all personnel visiting, entering, or working on-site.

Site control zones will be established at each excavation area at the site. The exact locations have not yet been established, but it is expected that the EZ will be a relatively small area (e.g., 10-20m) around each excavation pit during Phase I and will be the entire area within the structure during Phase II.

7.1.1 Support Zone

The SZ is free of contamination and a relatively safe area separated from the CRZ. A portion of the SZ may be established at each individual work area. The main SZ contains the Command Post/Office, and safety support/equipment storage area. This area provides a center for team communications, emergency response, and miscellaneous support. Appropriate sanitary receptacles shall also be located in this zone. Site operations will be controlled from this location, and the Command Post may also function as an evacuation point. A log will be kept in the SZ of all personnel entering and exiting the site. Potentially contaminated personnel, equipment, or material are not allowed in the SZ, except in the form of appropriately packaged, decontaminated, and labeled samples. Meteorological conditions should be observed and noted from this zone, including those factors pertinent to heat stress.

7.1.2 Contamination Reduction Zone

A CRZ will be established between the EZ and the SZ that shall accommodate heavy and light equipment and personal decontamination. The CRZ will encompass an area immediately adjacent to the EZ and excavation pits. The CRZ area shall be partitioned into two sections. The CRZ entrance shall allow employees who have performed gross decontamination to perform additional decontamination/rinsing activities (i.e. monitoring and sampling equipment, etc.). This section shall contain water-tight basins to contain all wastewater generated. The second half of the area shall exit into the SZ and shall contain a wash sink, first aid kit and benches for heat and cold relief, fluid replenishment, and various sizes of clean PPE. All personnel entering the CRZ or EZ will wear the prescribed level of protective clothing required for that zone. All items intended to be placed on the face or in the mouth (cigarettes, chewing tobacco, food, cosmetics, etc.) are prohibited.

7.1.3 Exclusion Zone

The excavation pits, which may contain airborne or hazardous materials contamination, will be the EZ. Before each task begins, the EZ "hot line" will be clearly identified using caution flagging tape or traffic cones. The size of the EZ will depend on the phase of the project. The SSS may establish more than one restricted area within an EZ if different levels of protection are being used or if different hazards exist. All areas where invasive work activities occur will be considered to be an EZ. Personnel are not allowed in the EZ without:

- A "buddy",
- Appropriate PPE,
- Current OSHA medical authorization, and
- Current OSHA training certification

7.2 COMMUNICATIONS

Successful communication between site personnel in the EZ/CRZ and the SZ and between site personnel and local emergency response agencies is essential. A cellular telephone will be available on-site for emergency use. Emergency numbers will be posted by the telephone (see Table 12.1). Work will not be conducted on-site without access to a telephone, and site personnel will be informed of the nearest available telephone.

7.3 SITE ACCESS AND SECURITY

Entry to and exit from the site will be controlled by the SSS. Work site entry will be limited to authorized personnel only.

For the Phase II work, signs will be printed in bold large, English letters on a contrasting background and will be posted so that they are visible from all points where entry into the enclosure might occur. The signs will indicate that the enclosure is a restricted area and that persons entering the structure must check with the SSS to see what protective steps, if any, are necessary before entering the structure.

8.0 PERSONAL PROTECTIVE EQUIPMENT

8.1 GENERAL

Personal protective equipment (PPE) will be worn to minimize personnel exposure to site contaminants. Decision-making criteria for PPE requirements include:

- Site historical information;
- Type of contaminants suspected or known to be present;
- Work location;
- Duration of site activities; and
- Type of task to be performed.

The level of protection worn by site personnel will be enforced by the SSS. Levels of protection may be upgraded or downgraded at the discretion of the SSS based on real-time air monitoring data, surface contamination criteria, and prior site experience.

8.2 SITE-SPECIFIC REQUIREMENTS

Hard hat, safety glasses, and steel-toe/steel-shank work boots must be worn at all times, except for designated areas identified by the SSS. The default level of protection will be EPA Level D when working in the community and modified EPA Level D when working in any excavation areas.

The various levels of PPE required for this project are summarized in Table 9-1. Any changes in the level of protection will be documented in the SSS's logbook. Initial levels of protection assigned for each task are outlined in the AHAs (Appendix C). Levels of protection less than those designated in these tables must first be approved by the SSS.

A site-specific respiratory protection program documenting requirements for this project is provided in Appendix D. All respiratory protection used by BBC will be selected in accordance with procedures outlined in the NIOSH Respirator Decision Logic (May 1987), 29 CFR 1926.1101, and 29 CFR 1926.62.

8.3 SITE LAUNDERING

Any reusable work coveralls used at the site will be laundered twice per week or after any day where they become contaminated. Laundering will be completed using a typical household washing machine. Coveralls will be laundered according to manufacturer's recommendations using a non-colorfast disinfectant detergent. Laundered coveralls shall be placed into a dryer and dried according to manufacturer's recommendations.

Table 8-1. PPE Selection Criteria

PPE Item	Level B	Level C	Modified Level D	Level D
Work boot (steel-toed, leather)	✓	✓	✓	✓
Work gloves			✓	✓
Hearing protection (as required)	✓	✓	✓	✓
Safety glasses			✓	✓
Hard hat	✓	✓	✓	✓
Poly-coated tyvek or equivalent		✓	✓	
Surgical inner gloves	✓	✓	✓	
Chemical resistant outer gloves	✓	✓	✓	
Chemical resistant safety boots (or boot covers)	✓	✓	✓	
Saranax coveralls	✓			
Air purifying full-face respirator with appropriate filtering cartridges		✓		
Full-face positive-pressure SCBA or full-face supplied air respirator with 5-minute escape capability	✓			

Note:

It is not anticipated that Level A protection will be required for this project. A face shield is required for employees when splash hazard exists or when decontamination is being performed using high-pressure wash.

9.0 EXPOSURE MONITORING AND AIR SAMPLING PROGRAM

9.1 GENERAL

This section describes the elements of the monitoring program to be implemented at the project site. The monitoring includes suspected or known contaminants of concern to be monitored, the type of monitoring equipment required, and action levels to be used. Due to the activities scheduled and the site historical information, it is anticipated that the following types of monitoring will be required during Phase I (the Phase II monitoring approach is to be determined after Phase I is completed):

- Volatile organic compound (VOC) levels (real-time, time-integrated, personnel);
- Semi-volatile organic compound (SVOC) levels (time-integrated);
- Combustible gas levels (real-time);
- Oxygen levels when confined space entry is required (real-time);
- Hydrogen sulfide levels (real-time);
- Particulate levels (real-time, time-integrated);
- Metals (time-integrated); and
- Thermal stresses (real-time).

9.2 REAL-TIME MONITORING

Information is given below for general work place monitoring, confined space monitoring, and site perimeter/community monitoring. More information may be found in the Phase I Monitoring Study Design Plan prepared for this project. The parameters to be monitored during Phase II, along with the number & location of monitoring sites and the frequency of monitoring will be determined once the Phase I monitoring results have been reviewed.

9.2.1 General Work Place Monitoring

There is the potential for chemical exposure of workers during the excavation activities. Therefore, during these operations the site will be monitored using the following approaches:

- Real-time monitoring with a combination flame ionization detector (FID) and photo ionization detector (PID) for organic vapors throughout the excavation and soils handling activities where exposure to volatile organic compounds (VOCs), including BTEX, is possible. Real-time monitoring of total hydrocarbon emissions will be performed as long as excavation is being performed.
- Real-time monitoring for hydrogen sulfide using a Jerome 631-X monitor. This monitor will be used during excavation operations to determine worker and community exposure to H_2S.

- Real-time monitoring for vapor phase mercury using a Jerome 431-X monitor. This monitor will be used during excavation operations to determine worker and community exposure to mercury.

Potential exposure to airborne hazards will be monitored in real-time to ensure that personal protective measures and emission controls measures are taken if the real time measurements exceed action limits. As discussed above, organic vapors, hydrogen sulfide, and mercury emissions are all of potential concern during excavation and soils handling. Therefore, real-time monitoring using direct reading instrument will be used to monitor for airborne concentrations of these constituents. The organic vapor monitor will be calibrated, using two standards, one which responds best to the FID (e.g., methane) and one that responds best to the PID (e.g., benzene), daily or as deemed necessary by the Site Safety Supervisor. Daily calibration will be performed before work begins each day and daily calibration data will be recorded and maintained as part of the project record. The hydrogen sulfide and mercury analyzers are factory calibrated and do not need daily calibrations.

At the discretion of the SSS, real-time monitoring may be performed for respirable dust levels inside each active exclusion zone during dust-producing activities. If downwind particulate levels are greater than upwind particulate by 0.15 mg/m^3 or more, dust suppression techniques will be employed. The respirable dust monitor will be calibrated before each use using a zero air filter provided by the manufacturer.

At the discretion of the SSS, a Sound Level Meter (SLM) will be used to monitor employee noise levels during heavy equipment and power tool operation and during other noise-producing site activities. Hearing protection will be required for employees exposed to 85 decibels (dBA). The SLM will be calibrated before and after each use, using an acoustical calibrator with a known decibel level output.

9.2.2 *Confined Space Monitoring*

The excavation pit in Phase I may be a confined space, depending on the depth and other conditions of the pit. The enclosure used in Phase II is considered to be a confined space. Initial monitoring of the spaces with a 3 in 1 meter (oxygen, combustible gas, hydrogen sulfide) will take place to sufficiently assess the conditions of the space. Other factors will also be assessed (e.g., assess, egress, depth, etc.) to determine safety and applicability to confined space regulations. The following action levels are associated with the 3 in 1 meter measurements during an initial survey:

- Oxygen: The trench will not be entered if the oxygen concentration is less than 19.5%;
- Combustible gas: The trench will not be entered if the combustible gas concentration is greater than 10% of the LEL; and
- Hydrogen sulfide: The trench will not be entered if the hydrogen sulfide concentration is greater than 10 ppmv (OSHA Ceiling value is 20 ppmv), unless EPA Level B is worn.

9.2.3 Site Perimeter / Community Monitoring

A baseline air monitoring program will be conducted in the community prior to the start of excavation during Phase I. In addition, time-integrated air sampling over an 8-10 hr period at the work site perimeter (one site downwind of the trench) and in the community will be conducted during Phase I for following compounds:

- Reduced sulfur compounds (RSC) and VOCs using SilcoCan™ canisters;
- Semi-volatile organic compounds (SVOCs) in particular the polynuclear aromatic compounds (PAHs) using high volume sampling and XAD-2 resin; and
- Heavy metals using high volume sampling and a size selective inlet.

During Phase II, a perimeter monitoring program will be performed. The details of this program will be developed once the Phase I monitoring results have been reviewed. However, as a minimum, Table 10-0 depicts action levels and responses to organic vapor concentrations outside of the remediation structure and perimeter.

Table 9-0. Chemical Hazard Criteria and Response Guide for VOCs-Perimeter

Response Level	PID Total Organic Vapor Concentration	Response
1	<5 ppm above background	➢ Continue periodic PID readings.
2	≥5 ppm above background for more than two minutes	➢ If instantaneous PID readings exceed 5 ppm above background, initiate colorimetric tube screening for benzene. ➢ If colorimetric tube confirms presence of >1 ppm benzene, take a PID measurement at least once every 30 minutes. ➢ If colorimetric tube result is <1 ppm, continue monitoring with PID.
3	N/A	➢ If colorimetric tube result in response level #2 is >1 ppm for benzene, take another sample for confirmation, if confirmed, then stop work and cover excavated materials. Notify OCD and initiate corrective actions.

9.2.4General Monitoring Considerations

All monitoring results shall be recorded on a daily basis. Copies of the data sheets shall be included in the daily safety log. Monitoring data sheets shall include:

- Date and time of monitoring;
- Monitoring location;
- Instrument type, model number, and serial number;
- Calibration/background levels;
- Monitoring results;
- Interpretation of the data; and
- The SSS's signature.

Site personnel shall inform the SSS of any changes in the odor characteristics of the site areas. For instance, if someone detects an odor that is persistent and/or intensifying in strength, they are to notify the SSS. All claims will be investigated, typically by monitoring for hydrogen sulfide and organic vapors taking note of the changes in the odor characteristics (e.g., pungent, acrid, fuel-like, etc.). The SSS will initially document the results of real-time air monitoring every 15 minutes. This frequency can be reduced or increased at the discretion of the SSS as conditions warrant.

seconds) real-time (instantaneous) measurements of total hydrocarbon levels on the PID instrument exceeds 5 ppmv at the breathing zone of workers nearest the excavation or excavation spoils, corrective action will be taken to decrease the emissions, prevent worker exposure and prevent migration of organic vapors into the community.

If real-time instrumentation indicates the presence of VOCs at concentrations above the action levels, then a survey of the area will be performed for benzene using colorimetric tubes or their equivalent. The elevated concentrations of total hydrocarbons may indicate the presence of potentially hazardous levels of BTEX. If such levels are encountered, engineering controls to reduce benzene will be used.

In the event that the corrective action criterion for total hydrocarbon vapors or other contaminants is exceeded, the following actions will take place. The decision of corrective action will be the decision of the Site Safety Supervisor.

- Stop or slow digging of soils;
- Cover-up all piles and exposed contaminated soils with:
  - -- Polyethylene plastic,
  - -- Foam, or
  - -- Water
- Continue to monitor area for exposure with the TVA-1000; or
- Don proper respiratory protection (see Appendix D).

Table 9-2. Chemical Hazard Criteria and Response Guide for VOCs-Site Workers

Response Level	PID Total Organic Vapor Concentration	Response
1	<5 ppm above background	➢ Modified Level D PPE. Continue periodic PID readings.
2	≥5 ppm above background for more than two minutes	➢ If PID readings exceed 5 ppm above background, initiate colorimetric tube screening for benzene. ➢ If colorimetric tube confirms presence of >1 ppm benzene, upgrade to modified Level C PPE[1] and take a PID measurement at least once every 30 minutes. ➢ If colorimetric tube result is <1 ppm, continue working in Modified Level D PPE. Monitor with PID.
3	N/A	➢ If colorimetric tube result is >1 ppm for benzene, stop work and cover excavated materials. Notify OCD and initiate corrective action. Don full or half-face respirators until corrective actions bring the concentration of benzene to an acceptable level. Prove this by monitoring the area until the PID measures <5 ppm and colorimetric tube result is <1 ppm.

[1] Modified Level C PPE—includes use of a half-face respirator or greater.

All measurements will be made at worker breathing zones.

Table 9-3. Action Levels for Hydrogen Sulfide (H_2S)

Action Level	Time Period	Monitoring Location	Required Action
1 ppm	(2) consecutive 1-min averages	Site Perimeter	Notify site engineer. Suspend site activities until data are reviewed and corrective measures considered.
5 ppm	2) consecutive 1-min averages	Site Perimeter	Notify site engineer. Suspend site activities until data are reviewed and corrective measures considered.
10 ppm	2) consecutive 1-min averages	Work Zone[a]	Notify health & safety officer. Upgrade to Level B - PPE for affected workers.
>50 pm	2) consecutive 1-min averages	Work Zone[a]	Notify health & safety officer. Evacuate and apply engineering controls to lower emissions.

a - Monitoring will be performed immediately downwind of the work zone, as close as is feasible (e.g., 10-20m downwind).

All worker exposure measurements will be made at worker breathing zones.

Note: For comparison: OSHA 8-hr PEL = N/A
OSHA TWA-C (15-min) = 20 ppm
OSHA peak (10-min) = 50 ppm
IDLH = 100 ppm

Table 9-4. Action Levels for Mercury (Hg)

Action Level	Time Period	Monitoring Location	Required Action
5 ppb ($0.042\ mg/m^3$)	(2) consecutive 1-min averages	Site Perimeter	Notify site engineer. Suspend site activities until data are reviewed and corrective measures considered.
10 ppb ($0.083\ mg/m^3$)	(2) consecutive 1-min averages	Site Perimeter	Notify site engineer. Suspend site activities until data are reviewed and corrective measures considered.
12 ppb ($0.1\ mg/m^3$)	(2) consecutive 1-min averages	Work Zone[a]	Notify health & safety officer. Upgrade to Level C - PPE for affected workers (i.e., use of ½ face respirators with appropriate cartridges).
>50 ppb ($0.42\ mg/m^3$)	(2) consecutive 1-min averages	Work Zone[a]	Notify health & safety officer. Apply engineering controls to lower emissions.

a - Monitoring will be performed immediately downwind of the work zone, as close as is feasible (e.g., 10-20m downwind).

All worker exposure measurements will be made at worker breathing zones.

Note: For comparison: OSHA 8-hr PEL = N/A
OSHA TWA-C (15-min) = $0.1\ mg/m^3$ (0.012 ppm)
IDLH = $10\ mg/m^3$ (1.2 ppm)

11.8 DECONTAMINATION DURING A MEDICAL EMERGENCY

For minor medical problems or injuries, regular decontamination procedures will be followed. If emergency, life-saving first aid and/or medical treatment is required, regular decontamination procedures may need to be abbreviated or omitted.

- Do not attempt to wash or rinse the victim, unless the victim has been contaminated with an extremely toxic or corrosive chemical that may cause injury or loss of life to emergency response personnel.
- Outer garments can be removed if it does not cause a delay, interfere with treatment, or aggravate the problem.
- PPE can be cut away, and respiratory protective equipment must always be removed.
- If contaminated clothing cannot be safely removed, the victim should be wrapped in a blanket or plastic sheeting to prevent the contamination of the inside of the ambulance and/or emergency response personnel.

The SSS will accompany the contaminated victim to the hospital to advise the medical staff of the type of contamination.

11.9 SMALL OR INCIPIENT FIRE

A small fire is defined as a fire that can be extinguished with an available 20-lb type ABC fire extinguisher. An incipient fire is a fire that is small because it has just started. In the event of a small or incipient fire, the following minimum actions will be taken:

- Evacuate nearby personnel from the area, if possible, to an upwind location or to an area not affected by smoke or hazardous decomposition products if an upwind location is not feasible.
- Attempt to extinguish fire using portable fire extinguisher or by smothering.
- Contact emergency response personnel, as needed, for any injuries or exposures to hazardous decomposition products.
- After the fire has been extinguished, or emergency response personnel have been contacted, notify the BBC Project Director.

11.10 LARGE FIRE OR EXPLOSION

An explosion, large fire, or a small fire that cannot be extinguished is beyond the first line capabilities of on-site personnel. Examples of potential fire hazards that theoretically could occur during this project include carbon bed fires and equipment refueling fires. Professional emergency response personnel would be needed to provide emergency assistance for these types of incidents. In the event of a large fire, explosion, or a small fire that cannot be extinguished, the following minimum actions will be taken:

- Evacuate *all personnel* from the site, if possible, to an upwind location or to an area not affected by smoke or hazardous decomposition products if an upwind location is not feasible.

- Keep the victim from moving around.
- Keep the victim as calm as possible and preferably lying down.
- Immobilize the bitten extremity and keep it at or below the heart level.
- Treat for shock. Keep the victim lying down and comfortable. Maintain body temperature.
- If breathing stops, give mouth-to mouth resuscitation. If breathing stops and there is no pulse, perform CPR.
- Identify the snake. If the snake can be killed without risk or delay, bring it to the hospital for identification. Use extreme caution when handling the snake, even when presumed dead.
- Wash the area of the bite with soap and water. Blot dry with sterile gauze.
- Do not give alcohol, sedatives, aspirin, or any medicine containing aspirin.
- Cold therapy is not recommended.

Signs of spider bites are similar to those of other sudden illnesses. The signs include:

- Nausea or vomiting,
- Difficulty breathing or swallowing, and/or
- Sweating or salivating more than normal.

A spider bite may also be suspected when there is also severe pain in the bite area, a mark indicating a possible bite, or swelling of the area. In the event of a spider bite emergency:

- Wash the wound,
- Apply a cold pack, and
- Contact emergency response personnel immediately.

Anti-venoms are available for black widow spider bites.

If a site worker is bitten or stung by an insect:

- Remove the stinger. Scrape the stinger away from the skin with a fingernail, or credit card. Do not use tweezers. Tweezers may inject more venom from the sac.
- Wash the bite/sting area with soap and water.
- Cover the bite/sting area to keep it clean.
- Apply an ice pack to the bite/sting area to reduce any pain and swelling.
- Watch the victim for signals of an allergic reaction.

If a site worker finds a tick imbedded on the skin:

- Remove the tick immediately with fine-tipped tweezers (obtain tweezers and first aid kit from the site office trailer) by grasping the tick as close to your skin as possible and gently pulling straight out. Do not squeeze the tick's body as this may inject fluid into you.
- Wash the bit area with soap and water.
- Dry and apply antiseptic.
- Observe the skin area for rash, redness, or other signs that may require physical care.
- Destroy the tick by holding the tick in the tweezers and transferring to a plastic zip lock bag.

Emergency response personnel should be contacted in the event of an insect bite or sting:

- If the individual does not know what bit or stung him/her,
- If the individual has a history of allergic reactions to insect bites or stings,
- If the individual is bitten or stung on the face or neck, or
- If the individual begins to have difficulty breathing.

11.16 SITE SECURITY AND CONTROL

Site security will be the responsibility of the SSS and includes the control of entry or exit of personnel and equipment to the site in an emergency. The SSS will coordinate the arrival of any internal or outside emergency response personnel. Unauthorized persons will not be permitted to enter the site during an emergency incident.

11.17 EMERGENCY EQUIPMENT AND FIRST AID REQUIREMENTS

A supply of emergency PPE and equipment will be maintained on-site in sufficient quantities and locations to ensure an adequate supply for all emergency response personnel. All emergency equipment will be fully stocked and readily accessible. The following emergency supplies will be stored on-site:

- Industrial first aid kit, located in the SZ/CRZ;
- CPR mouth shield, located in the SZ/CRZ;
- Instant cold packs, located in the SZ/CRZ;
- Eye wash, located in the SZ and in the CRZ;
- Fire extinguishers, located:
  - At the entrance to the CRZ (minimum 40-B:C; maximum travel distance of 75 feet to the extinguisher),
  - In every site trailer (minimum 40-B:C),
  - In each piece of heavy equipment (minimum 10-B:C)
  - In each motor vehicle (minimum 10-B:C), and
  - Next to any flammable/combustible liquid or compressed gas storage area (minimum 40-B:C, located within 10 feet of the entrance).
- Face-shields;
- Polyvinyl chloride (PVC) coveralls;
- Regular and poly-coated Tyvek or other chemical resistant coveralls;
- Chemical resistant boot covers (latex);
- Chemical resistant outer gloves (nitrile);
- Solvent- and oil-absorbent pads and booms;
- Soap or waterless hand cleaner and towels; and
- American Red Cross First Aid and CPR Instruction Manuals.

12.0 STANDARD OPERATING SAFETY PROCEDURES, ENGINEERING CONTROLS, AND WORK PRACTICES

12.1 GENERAL SITE RULES

General site rules include the following.

- All site personnel will wear steel-toe/shank safety shoes. A hard hat and safety glasses also will be worn when working in the vicinity of excavation or construction areas.
- The buddy system will be observed at all times in the EZ and CRZ.
- Entry into and exit from the site EZ and CRZ will only be permitted through designated access points, except during an emergency, or as authorized by the SSS.
- Personnel entering the EZ must wear the required PPE and must exit through the personnel decontamination station.
- No eating, drinking, smoking, or any other activity involving hand-to-mouth contact will be allowed in the EZ, CRZ, or before completing the personnel decontamination sequence (refer to Section 11.2).
- Facial hair that interferes with a respirator-to-face seal will not be permitted on personnel working in the EZ or CRZ.
- Never enter a confined space (including an excavation or trench) until the SSS confirms the atmosphere is safe. A confined space entry permit is required for each confined space entry.
- All site personnel who wear corrective lenses will provide their own prescription safety glasses and respirator optical inserts.
- Horseplay will not be tolerated.
- Matches and lighters are not permitted in the EZ or CRZ.

12.2 DRUM/CONTAINER HANDLING

All drums and containers used during site activities will meet the appropriate DOT, OSHA and EPA regulations for the waste that they will contain. Employees participating in activities involving drum or container use will be trained in the hazards associated with the drum activities. Activities on-site will be organized to minimize the amount of drum or container movement.

Where spills, leaks, or ruptures may occur, adequate quantities of spill containment supplies will be stationed in the immediate area. The spill containment supplies must be sufficient to contain and isolate the entire volume of hazardous substance in the drum or container. Refer to Sect. 12.11for details on emergency spill response procedures.

12.3 SANITATION

Sanitation facilities will be set up in accordance with 29 CFR 1926.51, including the following items:

- Drinking/potable water,
- Toilets,
- Washing/shower facilities and change rooms,
- Food service/eating and drinking areas,
- Waste disposal, and
- Vermin control.

13.0 ON-SITE RECORDKEEPING AND REPORTING

13.1 REQUIRED REFERENCES

The SSS will be responsible for ensuring the required reference material is available:

- Project HASP and any applicable addenda,
- OSHA 29 CFR 1910,
- OSHA 29 CFR 1926,
- A current ACGIH TLV booklet,
- A current NIOSH Pocket Guide to Chemical Hazards,
- Instruction manuals for all monitoring equipment,
- NIOSH/OSHA/USCG/EPA "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities,"
- American Red Cross First Aid and CPR Instruction Manuals, and
- Safety equipment catalogs.

13.2 REQUIRED RECORDKEEPING DOCUMENTATION

The following documentation must be kept on-site and readily accessible:

- OSHA Form 200 (Log and Summary of Occupational Injuries and Illnesses),
- MSDSs for all hazardous chemicals brought on-site by BBC and its subcontractors,
- a Site-Specific Respiratory Protection Program that meets the requirements of 29 CFR 1910.134 (Appendix D),
- Employee fit test records,
- OSHA-required training records for site workers,
- OSHA-required medical surveillance examination clearance records for site workers,
- Calibration records for all health and safety-related monitoring equipment,
- Health and safety logbook,
- Copies of any Employee Notification of Exposure forms,
- Copies of any Incident/Injury Reports,

- Copies of Daily Health and Safety Reports, and
- Signed statements of the HASP Compliance Agreement (Section 15).

13.3 TRAINING LOGS

Training log(s) will include initial site-specific safety training, daily on-site safety briefings, and visitor training. A record of the training will be documented on the Daily Health and Safety Report, which will be submitted to BBC's Authorized Representative. Appendix A contains a copy of the Meeting Attendance form. The training log will include the following information:

- Date,
- Employee's name and social security number (attendance check),
- Time allocation in training session,
- Training topic(s), and
- Trainer(s) signature.

13.4 DAILY HEALTH AND SAFETY REPORTS

The SSS will be responsible for completing a Daily Health and Safety report. Daily Health and Safety Reports will be available for review at any time. Appendix A contains the form used for the Daily Health and Safety Report. These reports will include:

- Date;
- Work areas checked;
- Employees present and their job assignment;
- PPE worn by employees;
- Accidents, incidents, near misses, or breaches of procedure;
- Equipment Inspection/Maintenance Reports;
- Record of training;
- Environmental and personnel exposure monitoring and sampling results;
- Employee and visitor register; and
- SSS signature.

The SSS has the option to incorporate completed logs/reports by reference into the Daily Health and Safety Report.

13.5 HEALTH AND SAFETY FIELD LOGBOOK

The SSS will maintain a logbook on-site in accordance with standard scientific record keeping procedures. Complete documentation of site activities will be maintained. The following information will be recorded on a daily basis:

- Site conditions (e.g., weather);
- Activities being performed;
- Personnel on-site and working in the EZ;
- Site visitors;
- Incidents, accident, and near misses;
- Violations of health and safety procedures; and
- Other significant events.

Site monitoring will also be documented in the health and safety logbook, including the following information:

- Monitoring equipment condition,
- Calibration records,
- Employees and work areas monitored, and
- Monitoring results.

The original health and safety logbooks will be kept in this project files.

13.6 OSHA 200 FORM

An OSHA 200 Form (Log and Summary of Occupational Injuries and Illnesses) will be kept in the on-site health and safety files. All recordable work-related injuries and illnesses will be recorded on this form within six days. At the end of the project, the OSHA 200 Form will be placed in the project files. Subcontractors must also meet the requirements of maintaining an OSHA 200 Form.

13.7 ACCIDENT/INCIDENT REPORTING

Upon receiving a report of an on-site incident, the SSS will investigate the circumstances surrounding the incident. The SSS will notify and provide a copy of the initial incident report to the Project Director (PD) within 24 hours of the occurrence, who will then initiate an internal accident investigation and assist in rendering corrective actions. The final incident report shall be issued to the PD within 72 hours. The accident/incident reporting procedure includes the steps shown in Table 14-1.

Table 13-1. Incident reporting process

1.	Incidents, accidents, and near misses will be reported verbally and in writing.		
2.	**If the incident or accident results in:**	**Then the SSS will verbally report:**	**And submit a written report:**
		Immediately to:	*Within 24 hours to:*
	• Fatality(s); • Hospitalization of three or more persons, or • Property damage >$50,000.	• Federal OSHA (within 8 hours), • PD, • PjM,	• PD, • PjM.
		Immediately to:	*Within 24 to:*
	• A near miss, • Hospitalization of 1 to 2 persons, or • Property damage <$50,000.	• PD; • PjM.	• PD, • PjM,
3.	The SSS will submit a written incident follow-up report within 72 Hours to the PD.		
4.	If the incident or accident results in an OSHA-recordable injury or illness or property damage, the SSS will record the injury or illness on the project OSHA 200 Form within six days of the accident or incident.		
5.	If the incident or accident results in medical attention (beyond on-site first aid) and/or includes lost time from work, the SSS will contact the appropriate Corporate office for assistance in obtaining and filing workman's compensation claim forms.		

14.0 SITE SAFETY AND HEALTH PLAN COMPLIANCE AGREEMENT

All project personnel, including visitors, must follow the requirements of this HASP and applicable addendums to the HASP. In order to document individual agreement with this requirement, all personnel must complete the following Site Safety and Health Plan Compliance Agreement. These agreements will be kept in the on-site health and safety files and will become part of the permanent project record upon completion of site activities.

I, _____ (print name), have read the Site Safety and Health Plan (HASP) for the Goodwin Treating Plant Remediation project or I have been verbally advised of its contents. I understand and I agree to comply with all of its provisions. I understand that I could be prohibited from working on the project, and I may be subject to disciplinary actions for violating any of the health and safety requirements specified in the HASP and applicable amendments to the HASP.

_____ _____

Signature Date

APPENDIX A

SITE FORMS

- Daily Health and Safety Report
- Meeting Attendance Form
- Medical Data Sheet
- Training and Medical Documentation
- OSHA 200 Log and Summary of Occupational Injuries and Illnesses
- Field Change Request

APPENDIX B

MSDS's

APPENDIX C

ACTIVITY HAZARD ANALYSES

- Project mobilization and construction of enclosure (Table C-1);
- Excavation of contaminated soils and surrounding soils (Table C-2);
- Transporting Surge Pond spoils to staging area (Table C-3);
- Transfer of spoils to trucks for off-site transport (Table C-4);
- Decontamination of equipment and temporary facilities (Table C-5);
- Area Restoration (Table C-6); and
- Demobilization (Table C-7).

APPENDIX D

SITE-SPECIFIC RESPIRATORY PROTECTION PROGRAM

Respiratory Protection Plan (RPP)

This RPP complies with 29 CFR 1910.134. Respirators were selected on the basis of the anticipated respiratory hazards, work tasks, and potential workplace conditions. A sufficient number of respirator models and sizes have been made available to ensure that the respirator is acceptable to, and correctly fits the user. All respirators used by on-site staff will be NIOSH-certified and all cartridges will be labeled with the appropriate NIOSH-approval. The label shall not be removed or defaced while in use. The following table indicates the requirement for respirator use and change of cartridge-out.

Task	Respirator	Cartridge	Cartridge Change Schedule
Sampling and other associated tasks, where exposure to contaminants of concern at hazardous concentrations are a potential threat. Respirator donning action levels are discussed in Section 10.	Fitted half or full-face air purifying respirator	Organic vapor (charcoal) and P100 combination cartridges	Even though the expected concentrations of air contaminants is low, personnel required to wear a respirator will conservatively change (dispose of old and insert new) their air purifying respirator cartridges once every 48 hours of use or one week of calendar time, whichever is less.

If an employee's respirator is properly sealed and he or she notices an odor, irritation, or other symptom of potential exposure, the individual will exit (to a safe location), notify the Site Safety Supervisor, and proceed to change (insert fresh cartridges) cartridges immediately. The conditions and equipment will be evaluated for safety before employee resumes work.

D.1 Medical Evaluations

All site workers who are required to wear an APR are included in a Medical Monitoring Program and have been medically approved (see fit test record) for respirator use before donning a respirator.

D.2 Fit Testing

Fit testing is required for all respirator users. Qualitative fit tests (QLFTs) meeting the QLFT protocols listed in Appendix A of 29 CFR 1910.134 have been used to fit test individuals using APRs for atmospheres less than or equal to 10 times the PEL. All site workers respirator users on-site will have had a QLFT within one year from the start of the project.

D.3 Respirator Use

Respirators will not be used if:

- Facial hair comes between the sealing surface of the face-piece and the face, or interferes with valve function;
- There is a condition that interferes with the face-to-face-piece seal or valve function;
- Corrective glasses or other personal protective equipment are worn in a manner that would interfere with the face-to-face-piece seal;

Note: site personnel will perform an appropriate seal check (positive and negative) each time they put on a respirator.

D.4 Maintenance and Care of Respirators

Respirators will be cleaned and disinfected as necessary to keep them in a sanitary condition. They will be stored in such a manner as to prevent damage and contamination, inspected regularly, and repaired as necessary. Damaged respirators that cannot be repaired will be removed from service immediately.

D.4.1 Cleaning and Disinfecting

- Disassemble respirator and remove cartridges;
- Wash the face-piece and associated parts in a mild detergent with warm water;
- Rinse completely in clean warm water;
- Air dry in an appropriate (clean) area;
- Reassemble the respirator and replace any defective parts; and
- Place it in a clean, dry plastic bag or other airtight container.

D.4.2 Maintenance

Respirators are to be properly maintained at all times. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn or deteriorated parts will be replaced prior to use. No components will be replaced or repairs made beyond those recommended by the manufacturer. The following checklist will be used when inspecting respirators:

Face-piece:

- Cracks, tears, or holes;
- Facemask distortion; and
- Cracked or loose lenses/face shield.

Head-straps:

- Breaks or tears; and
- Broken buckles.

Valves:

- Residue or dirt;
- Cracks or tears in valve material; and
- Improper seating of valve

Filters/Cartridges:

- Approval designation;
- Gaskets;
- Cracks or dents in housing; and
- Proper cartridge for hazard.

D.5 Training

All on-site workers will have received training in the use of respirators prior to the employee's use of a respirator. This training, at a minimum, included:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
- What the limitations and capabilities of the respirator are;
- How to use the respirator in emergency situations, including situations in which the respirator malfunctions;
- How to inspect, put on, and check the seals of the respirator;
- What the procedures for maintenance and storage of the respirator are;
- How to recognize the medical signs and symptoms that may limit or prevent the effective use of the respirator; and
- The general requirements of OSHA's Respiratory Protection standard.

Retraining is required annually and when the following situations occur:

- Changes in the project activities or conditions;
- Employee appears to have not understood or retained during the original training; and
- Any other situation arises that affects respirator use.

D.6 Program Evaluation

The Project Manager with the assistance of Site Safety Supervisor will monitor and evaluate project use of respirators to ensure that they are being used safely and effectively. This shall include consultation with respirator users regarding fit, respirator selection, respirator use under project conditions, and respirator maintenance.