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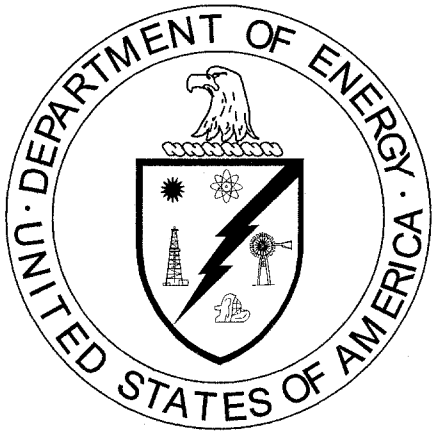
Secondary Document

Operation and Maintenance Plan for the Northwest Plume Groundwater System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky



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Operation and Maintenance Plan for the Northwest Plume Groundwater System Interim Remedial Action at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky

Date Issued—September 2010

Prepared for the
U.S. DEPARTMENT OF ENERGY
Office of Environmental Management

Prepared by
LATA ENVIRONMENTAL SERVICES OF KENTUCKY, LLC
managing the
Environmental Management Activities at the
Paducah Gaseous Diffusion Plant
under contract DE-AC30-10CC40020

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ACRONYMS

DCN	design change notice
DMIP	Data Management Implementation Plan
DOE	U.S. Department of Energy
DQO	data quality objective
EMS	Environmental Management System
EPA	U.S. Environmental Protection Agency
EQ	equalization
EW	extraction well
FFA	Federal Facility Agreement
HASP	Health and Safety Plan
IRA	interim remedial action
ISMS	Integrated Safety Management System
KPDES	Kentucky Pollutant Discharge Elimination System
MW	monitoring well
NWPGS	Northwest Plume Groundwater System
O&M	Operations and Maintenance
PGDP	Paducah Gaseous Diffusion Plant
PLC	programmable logic controller
QA	quality assurance
QC	quality control
ROD	Record of Decision
^{99}Tc	technetium-99
TCE	trichloroethene
VOC	volatile organic compound
WMP	Waste Management Plan

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EXECUTIVE SUMMARY

This Operations and Maintenance (O&M) Plan has been prepared to serve as a guide and reference for the O&M of the Northwest Plume Groundwater System (NWPGS) constructed as an interim remedial action (IRA) for the Northwest Plume at the Paducah Gaseous Diffusion Plant (PGDP), near Paducah, Kentucky. The IRA is consistent with the U.S. Department of Energy (DOE) Environmental Restoration Division *Record of Decision for Interim Remedial Action of the Northwest Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky,* DOE/OR/06-1143&D4 (DOE 1993) (ROD), which was signed in July 1993.

As stated in the ROD, "The primary objective of this interim remedial action is to initiate a first phase remedial action, as an interim action to initiate control of the source and mitigate the spread of contamination in the Northwest plume."

In August 1988, volatile organic compounds and radionuclides were detected in private wells north of PGDP. In response, DOE and the U.S. Environmental Protection Agency (EPA) entered into an Administrative Consent Order under Sections 104 and 106 of the Comprehensive Environmental Response, Compensation, and Liability Act. A site investigation was conducted and it was determined that the principal contaminants of concern in the off-site groundwater were technetium-99 (^{99}Tc), a radionuclide, and TCE, an organic solvent.

The ROD initiated an interim remedial measure that included the construction and operations of the NWPGS. The NWPGS as originally constructed and operated consisted of four extraction wells (EWs) in two well fields, a groundwater treatment system, including an air stripper for removal of TCE, and four ion exchange units for removal of ^{99}Tc. To evaluate the effectiveness of the IRA, monitoring wells were installed in the vicinity of the EWs.

The NWPGS treatment goals, as specified in the ROD, are 5 ppb for TCE and 900 picoCuries per liter (pCi/L) for ^{99}Tc. These values for TCE and ^{99}Tc are set as project-specific operational goals (not regulatory levels) for the effluent before discharge, they are not are not goals or regulatory levels for aquifer cleanup. The system effluent discharges to Kentucky Pollutant Discharge Elimination System permitted Outfall 001. A fixed-based contract laboratory performs sample analyses.

During the last quarter of calendar year 2009, the NWP IRA Optimization project was implemented to increase volatile organic compound (VOC) mass removal and enhance capture in the vicinity of the current south well field of the NWPGS. The NWP IRA System Optimization includes installation of two new EWs (EW232 and EW233), installation of piping and leak detection monitoring stations, construction of an overhead feeder to provide electrical power to the new EWs, and instrumentation and control modifications. The wells will be installed in the vicinity of the current south well field and will have a design capacity of 220 gpm. The piping and leak detection system will transfer the extracted groundwater to the C-612 Treatment Facility. The current north EWs, EW228 and EW229, will be shut down and taken out of service. The current south wells, EW230 and EW231, will be taken off line, but will remain in stand-by mode so as to be made operational with minimal effort. The standby mode status for EW230 and EW231 will provide contingency capability for enhanced plume capture pending assessment of the effectiveness of EW232 and EW233 and achievement of the model predicted well field performance as identified in the optimization design effort.

This O&M Plan provides the NWPGS operators with background information; program organization; reporting requirements; O&M requirements and guidelines; training requirements; and PGDP emergency response guidelines. It also includes references to plans and procedures required to maintain and operate

the treatment system to meet DOE, EPA, and Commonwealth of Kentucky policies and statutes. References herein to any plan or procedure refer to the most recent version of the plan or procedure in effect as of the date of this O&M Plan or to the revised version of such plans and procedures if revised subsequent to the date of this plan.

LATA Kentucky is in the process of revising and/or "blue sheeting" prior Paducah Remediation Services, LLC, (PRS) procedures. The procedures referenced in this document reflect the new procedure names effective September 24, 2010. A matrix table is included in the Appendix showing the crosswalk between old PRS procedures and new LATA Kentucky procedures.

1. EQUIPMENT STARTUP AND OPERATOR TRAINING

1.1 GENERAL NORTHWEST PLUME GROUNDWATER SYSTEM DESCRIPTION

In August 1988, volatile organic compounds (VOCs) and radionuclides were detected in private wells north of Paducah Gaseous Diffusion Plant (PGDP.) In response, U.S. Department of Energy (DOE) and the U.S. Environmental Protection Agency (EPA) entered into an Administrative Consent Order under Sections 104 and 106 of the Comprehensive Environmental Response, Compensation, and Liability Act. A site investigation was conducted, and it was determined that the principal contaminants of concern in the off-site groundwater were technetium-99 (^{99}Tc), a radionuclide, and trichloroethene (TCE), an organic solvent. The *Record of Decision for Interim Remedial Action of the Northwest Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky,* DOE/OR/06-1143&D4, (ROD) was signed in July 1993 (DOE 1993). As stated in the Declaration for the ROD, "The primary objective of this interim remedial action is to initiate a first phase remedial action, as an interim action to initiate control of the source and mitigate the spread of contamination in the Northwest Plume."

The ROD initiated an interim remedial measure that included the construction and operations of the Northwest Plume Groundwater System (NWPGS). The NWPGS construction was completed in May 1995, with system testing and shakedown through August 27, 1995. The NWP interim remedial action (IRA) System began routine pump-and-treat operations on August 28, 1995.

The NWPGS facility is located at PGDP near Paducah, Kentucky. The groundwater treatment system is housed in a pre-engineered metal building located outside the northwest corner of the PGDP security fence. The NWPGS is designed to recover and treat contaminated groundwater, to generate data to determine the treatment efficiency for the extracted groundwater, and to evaluate the effect of extraction on the Regional Gravel Aquifer.

The purpose of this Operations and Maintenance (O&M) Plan is to provide information on operation of the NWPGS and to provide data management and reporting requirements to assist in evaluating the effectiveness of the interim remedial action.

The groundwater recovery system originally included two wells in a south extraction well (EW) field at the PGDP security fence and two wells in a north EW field at the north end of the 1,000 ppb TCE plume. The extracted groundwater is transferred through secondary containment dual wall piping to the treatment facility. The treatment system is designed to remove TCE and ^{99}Tc using air stripping and ion exchange technologies. The off-gas from the air stripper passes through granular activated carbon prior to discharge to the atmosphere. The treated groundwater is discharged to a DOE-permitted outfall.

During the last quarter of calendar year 2009, the NWP IRA Optimization project was implemented to enhance capture and increase VOC mass removal in the vicinity of the current south well field of the NWPGS. The NWP IRA Optimization project was initiated as a result of observations and recommendations documented during several reviews and assessments conducted since 2003. Refer to the *Remedial Action Work Plan for the Northwest Plume Interim Remedial Action Optimization at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky,* DOE/LX/07-0339&D1, for more detail regarding the basis for the NWP IRA Optimization project (DOE 2010).

The NWP IRA System Optimization includes installation of two new EWs (EW232 and EW233), installation of piping and leak detection monitoring stations, construction of an overhead feeder to provide electrical power to the new EWs, and instrumentation and control modifications. The wells will be installed in the vicinity of the current south well field and will have a design capacity of 220 gpm. The

pipeline will transfer the extracted groundwater to the C-612 Treatment Facility. The current north EWs, EW228 and EW229, will be shut down and taken out of service. The current south wells, EW230 and EW231, will be taken off line, but will remain in stand-by mode so as to be made operational with minimal effort. The standby mode status for EW230 and EW231 will provide contingency capability for enhanced plume capture pending assessment of the effectiveness of EW232 and EW233 and achievement of the model predicted well field performance as identified in the optimization design effort.

The locations of the original NWPGS EWs and the new EW232 and EW233 are illustrated in Figure 1.

1.2 TESTING AND STARTUP

An integrated test for the original NWPGS installation was conducted in July 1995 and Shakedown Operations were conducted in August 1995. Normal O&M began on August 28, 1995.

Testing and start-up related to the NWPGS optimization project will include construction acceptance testing, EW pump tests, and integrated testing of instrumentation and controls modifications. These testing activities were performed during June and August 2010.

1.2.1 Construction Acceptance Testing

Construction acceptance testing activities will be performed during and immediately following construction of the pipeline and overhead electrical power line. The transfer pipeline will undergo hydrostatic pressure testing in accordance with the certified for construction specifications to verify that there are no leaks. Testing of electrical material and components will be in accordance with specifications to verify capability and compliance with requirements.

1.2.2 Extraction Well Pump Tests

At the completion of well installation, a step-rate drawdown test will be conducted to evaluate the well hydraulics. During a step-rate drawdown test, the well pump will be operated at specific flow rates for designated time intervals. Water level in the wells will be monitored during the pump tests. A series of steps will be performed where the pumping rate is increased and held constant for the specified time interval.

The flow rates and durations are planned for the step tests at each new EW are provided in Table 1.

Table 1. Flow Rates and Durations

Step Duration/Cumulative Time	Flow Rate (gpm)
15 minutes	50
15/30 minutes	100
15/45 minutes	150
15/60 minutes	200

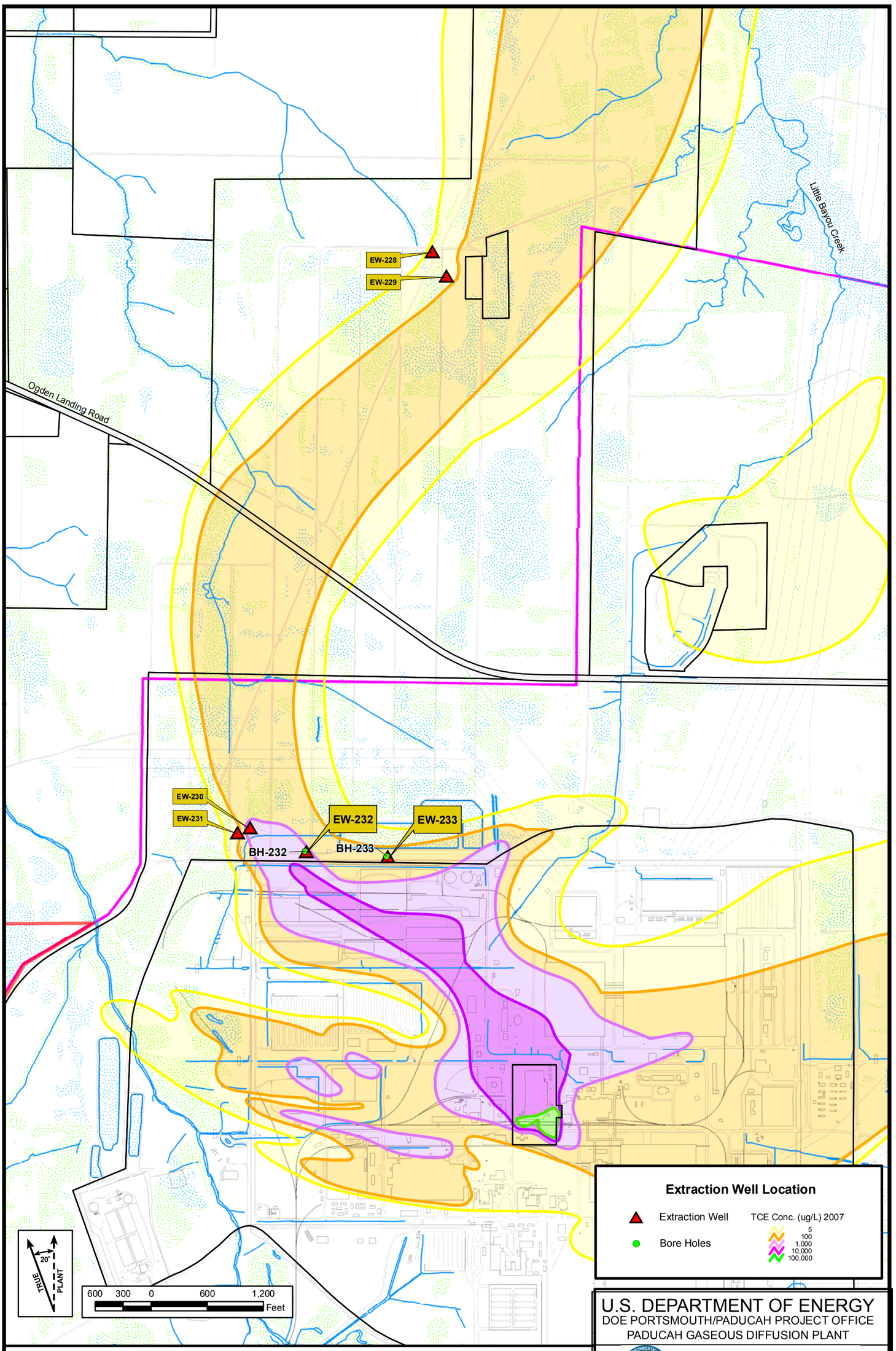

Figure 1. Northwest Plume Extraction Wells

FIGURE No. \\GIS\...\NW_Plume\EW_Locations_11x17.mxd
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1.2.3 Integrated Testing

Integrated testing involves the operation of the new EWs and treatment system equipment under controlled conditions to ensure proper operation of treatment system equipment and system interlocks. The leak detection sensors in well vaults and pipeline monitoring stations will be tested to ensure that, in the event of a leak, the EWs will be shut down, and proper notifications will be made via the auto-dialer. Other instrumentation and controls to be tested will include pressure sensors, flow meters, and level sensors.

TCE removal efficiency will be monitored to make sure that the combination of flow rate and TCE concentration in groundwater from the new wells does not exceed the design capacity of the air stripper. Based on manufacturer's literature for the modeled efficiency of the air stripper installed at the NWPGS, the unit is capable of removing TCE to approximately 5 ppb for an influent TCE concentration of 7,000 ppb at a flow rate of 220 gpm. At a lower flow rate the air stripper can treat water with a higher concentration and achieve the discharge goal.

A groundwater sample collected in April 2010 from MW498, which is located adjacent to new EW232, had a TCE concentration of 6,800 ppb. A March 2010 groundwater sample collected at MW499, adjacent to EW233, had 150 ppb TCE. Assuming the flow rate from each of the new wells is 110 gpm, the system would be able to remove the TCE to below the ROD goal level of 5 ppb. Based on the modeled efficiency and April TCE sample result discussed above, the air stripper would be able to meet the 5 ppb effluent goal if the entire flow was coming from EW232.

During integrated testing operations, personnel will monitor effluent TCE concentrations as determined by the online analyzer and will adjust flow rates from the new wells to make sure the ROD target treatment goal of 5 ppb is maintained. During integrated testing operations, personnel will collect grab samples of water from the EWs, equalization tank, and system effluent as indicated in Section 4 (Table 6) to confirm treatment system efficiency.

1.3 OPERATOR TRAINING

Training is performed for new operations staff when significant changes are made to procedures/work instructions or when system modifications are implemented. General training requirements regarding health and safety and PGDP requirements for work on-site are listed in the *Health and Safety Plan for the Paducah Plume Operation, Paducah, Kentucky,* PRS/PROJ/0067 (HASP) (PRS 2008a) and the *Paducah Plume Operations Quality Assurance Plan*, PRS/06-004 [Quality Assurance (QA Plan)] (PRS 2006a). These documents are available in trailer C-612-T-02.

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2. DESCRIPTION OF NORMAL O&M

2.1 O&M

The NWPGS is operated and maintained in accordance with this plan and references contained within the Paducah Plume Operations Project Library.

2.2 OVERVIEW OF OPERATIONAL STRATEGY, SYSTEM CONTROL, AND CONDUCT OF OPERATIONS

2.2.1 Operational Strategy and System Control

NWPGS operations are conducted to meet the primary objectives of the ROD (DOE 1993). System operating parameters (such as EW flow rates) are based on treatment system, EW, and MW data. The NWPGS is designed to operate 24 hours per day, 7 days per week to meet the objectives of the IRA as stated in the ROD (DOE 1993). The system is staffed during normal business hours for routine operational data collection, sampling, calibration activities, and preventative maintenance. The system is monitored and controlled 24 hours per day by a programmable logic controller (PLC). The PLC controls flow through the system and monitors system instrumentation for nonroutine operating conditions. Operations personnel are notified via auto-dialer in the event of off-normal conditions.

2.2.2 Conduct of Operations

NWPGS conduct of operations will be performed in accordance with the *Paducah Plume Operations Maintenance, Calibration, and Testing Plan at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (Maintenance and Calibration), PRS-ENM-0001 (PRS 2008b); the HASP; *Paducah Plume Operations Waste Management Plan Paducah Gaseous Diffusion Plant, Paducah, Kentucky,* PRS-ENM-0012 (WMP); along with applicable procedures and work instructions. Responsibilities and actions that affect the quality of the O&M of the NWPGS are described in detail in the QA Plan and the *Data Management Implementation Plan for the Paducah Plume Operations at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, PRS/06-003 (DMIP) (PRS 2006b).

Changes to system components are controlled by the DOE Prime Contractor's engineering procedure *Field Change Request (FCR), Field Change Notice (FCN), and Design Change Notice (DCN) Process,* PAD-WCE-0027.

2.3 OVERVIEW OF TREATMENT TECHNOLOGY (PROCESS THEORY)

The two primary treatment technologies used at the NWPGS are air stripping and ion exchange. These process technologies are briefly described below. Process technologies secondary to the primary contaminant removal technologies at the NWPGS include suspended solids removal by filtration, solids dewatering, and gas-phase activated carbon adsorption.

2.3.1 Air Stripping

The Northwest Plume TCE-contaminated groundwater is pumped from an equalization (EQ) tank through sand filters for solids removal and then to the top of the air stripping unit. Air is drawn upward through the unit as the contaminated groundwater flows downward through the system. The countercurrent flow

of air and water causes TCE to be stripped from the water and transferred to the air stream. The air stream is then passed through granular activated carbon to remove TCE before release to the atmosphere. The spent granular activated carbon is removed every six months and sent to an off-site treatment, storage, disposal, and recycle facility where it is reactivated and returned to the NWPGS for reuse.

2.3.2 Ion Exchange

^{99}Tc exists in the Northwest plume groundwater as the pertechnetate ion (TcO_4^-), which can be removed by ion exchange technology. During the first two years of pilot operation, four types of ion exchange resin were evaluated for performance. Based on cost and effectiveness, Purolite A-520-E was selected as the preferred resin.

Ion exchange is carried out in a pressurized vessel that contains a bed of ion exchange resin composed of small, spherically shaped beads. Effluent from the air stripper flows through a header at the top of the vessel, flows downward to a lateral collection assembly at the bottom of the vessel, and exits the ion exchange vessel. As contaminated water flows downward through the resin bed, anions are exchanged for chloride ions on the resin beads. Pertechnetate ions passing through the ion exchange bed will be removed until the available exchange sites are filled, after which these ions will begin to "leak" through the ion exchange columns and appear in the effluent stream. This "leaking" is defined as breakthrough, which is determined from sampling data. Pertechnetate ions have a greater affinity for some resins than other anions in the groundwater (sulfates, chlorides, nitrates, etc.); thus, pertechnetate ions tend to preferentially adsorb onto the surface of the resin beads (DOE 1993, Section 3.1).

2.4 OPERATING PROCEDURES

The NWPGS is operated in accordance with the DOE Prime Contractor's procedures/work instructions, equipment manuals, and sound engineering practices. Additional procedures/work instructions will be developed, as necessary, for NWPGS operations.

2.5 OPERATOR CHECKS

The operations staff conducts equipment inspections and records process data to ensure effective and safe system operations. Information such as system flow rates, alarm conditions, tank levels, pump status, pressure readings, and other data are collected and reviewed regularly. Daily system inspections and operational data collection are conducted in accordance with procedure PAD-ENR-0017, *Northwest/Northeast Plume Daily Operational Data Collection and Maintenance.* This procedure can be found in trailer C-612-T-02.

2.6 SYSTEM MAINTENANCE AND CALIBRATION

NWPGS maintenance (corrective and preventive) is performed in accordance with equipment manufacturers' recommendations and sound engineering practices. Detailed information on maintenance activities is included in the Maintenance and Calibration Plan. This plan can be found in trailer C-612-T-02.

2.7 COMMUNICATION

Below is the current communications equipment used by NWPGS personnel:

- Cellular telephones
- Landline telephone system
- Two-way radios

Operators maintain two forms of communication at all times.

The NWPGS contains a dedicated automatic telephone dialer (autodialer) for calling designated on-call personnel when system alarm conditions occur at the facility. Abnormal operating conditions trigger alarms in the main control system. The autodialer, upon receipt of an alarm signal from the PLC, dials on-call personnel and delivers an alarm message. NWPGS operations personnel notify the Operations Manager of all call-outs. If the autodialer is not answered or if the alarm is not properly acknowledged, it continues to dial the programmed numbers in succession until the alarm is properly acknowledged. The autodialer operates over standard telephone equipment.

Emergency telephone numbers for police, fire, medical emergencies, and key NWPGS personnel as well as PGDP interplant emergency lines are provided in the HASP.

2.8 WASTE MANAGEMENT

Waste generated, as a result of O&M activities at the NWPGS, includes spent activated carbon, spent ion exchange resin, filter press solids, sample containers, and personal protective equipment. The WMP addresses the management of waste produced at the NWPGS from the point of generation until custody is relinquished from the NWPGS. The WMP is located at C-612-T-02.

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3. DESCRIPTION OF POTENTIAL OPERATING PROBLEMS

This section describes operating problems that cause the shutdown of the NWPGS. It is limited to major problems and is not all-inclusive.

3.1 CAUSES FOR NWPGS SHUTDOWN

The NWPGS will shut down automatically as the result of certain nonroutine operating conditions. System shutdowns are initiated by programmed system interlocks that respond to the nonroutine operating condition and active system alarms. System alarms are the means by which the PLC communicates with the NWPGS operator. There are numerous alarm conditions; however, the alarms listed in Table 1 result in the activation of the NWPGS autodialer followed by an operator call-out. Table 2 lists system conditions and probable cause(s) related to each alarm condition.

Table 2. Alarm Conditions

Alarm No.	Alarm condition	System condition	Probable cause
1	EQ pump shutdown	Automatic system shutdown has occurred	Extraction well pump(s) shut down because of high/low pressure, high/low current, or a leak detection alarm
2	Sump level high	Automatic system shutdown has occurred	Faulty sump level detector or ruptured or leaking vessels
3	Manhole leak	Automatic shutdown of extraction wells serviced by the alarmed manhole has occurred	Infiltrated groundwater or system pipeline leak
4	High TCE in the effluent	System continues to operate until the operator manually shuts it down (if required) when responding to the call-out	TCE concentration in effluent exceeds “set point” or on-line analyzer is operating incorrectly

3.2 RESPONSE AND NOTIFICATION PROCEDURE FOR NWPGS SHUTDOWN

To troubleshoot and correct system problems, personnel follow appropriate procedures/work instructions and manufacturers’ equipment manuals, and seek any necessary outside technical assistance. NWPGS operators record all shutdown events, actions taken, and other pertinent information on daily operational data collection forms. NWPGS operations personnel notify the Operations Manager of system shutdowns.

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4. DESCRIPTION OF MONITORING AND LABORATORY TESTING

4.1 INTRODUCTION

Groundwater and process monitoring is conducted to ensure proper facility operation and compliance with the ROD (DOE 1993). The data quality objective (DQO) process is used by the NWPGS team to ensure collection of data of appropriate quality and quantity to meet NWPGS objectives.

4.2 DATA QUALITY OBJECTIVES

4.2.1 Problem Statement

As stated in the ROD, "The primary objective of this interim remedial action is to initiate a first phase remedial action, as an interim action to initiate control of the source and mitigate the spread of contamination in the Northwest plume." Groundwater contaminated with TCE and ^{99}Tc is extracted from the Northwest Plume and is pumped to the C-612 Treatment Facility. The treatment system removes TCE by air stripping and ^{99}Tc by ion exchange. The treated water is discharged into the DOE Kentucky Pollutant Discharge Elimination System (KPDES) Outfall 001.

4.2.2 Principal Study Questions, Decision Rules, and Data Needs

Table 3 outlines the principal study questions, decision rules, and data needs required to effectively monitor the operations of the NWPGS and meet the objectives stated in the ROD.

4.3 EFFECTIVENESS MONITORING

The purpose of the well effectiveness monitoring is to create and maintain an adequate database on the hydrogeologic situation in the Northwest Plume and to enable changes to be made in extraction/injection that will optimize remediation and containment (DOE 1993). This section describes hydraulic and chemical monitoring intended to support an evaluation of the performance of the NWPGS. Data collection and analysis will be conducted in the context of the remedial action objectives of the ROD, as stated above.

The goals of the effectiveness monitoring are to determine trends for TCE concentrations, primarily downgradient of pumping wells, determine mass removal rates, provide data for model recalibration, if necessary, and confirm capture zone development in accordance with model predictions. The general approach to hydraulic and chemical monitoring and analysis will follow methods described in "*A Systematic Approach for Evaluating Capture Zones at Pump and Treat Systems*" (EPA 2008).

Table 3. Principal Study Questions, Decision Rules, and Data Needs

	Question/Goal	Decision rule	Data needs
1	Are we mitigating the spread of the highest concentration portions of the plume?	If field data from the NWPGS well field and mathematical modeling of the plume indicate that the NWPGS is not mitigating the spread of the highest TCE and ^{99}Tc concentration portions of the Northwest Plume, then NWPGS operations will be evaluated and appropriate actions taken.	Field data will be collected from the NWPGS well field.[a]
2	Are we effectively meeting operational goals of 5 ppb or less TCE and 900 pCi/L or less ^{99}Tc discharging from C-612?	If discharge levels of TCE exceed 5 ppb or discharge levels of ^{99}Tc exceed 900 pCi/L, then NWPGS operations will be evaluated and appropriate actions taken.	TCE and ^{99}Tc samples will be collected from the NWPGS effluent (HV-171).
3	Are we satisfying the regulatory limit of 81 ppb or less for TCE at Outfall 001?	If 81 ppb or greater of TCE is detected at the C-612 effluent, then operations will be shut down, the system will be evaluated, and the appropriate actions taken.	TCE samples will be collected at HV-171.
4	What levels of TCE are being discharged into the atmosphere?	If the NWPGS exceeds its allocated portion of TCE emissions for environmental remediation activities, NWPGS operations will be evaluated and appropriate actions taken.	TCE samples will be collected from the NWPGS influent (HV-082) and effluent (HV-171). Mass balance calculations will be performed using the above data.
5	What levels of ^{99}Tc are being discharged to the atmosphere?	These data are required to be collected for annual National Emissions Standards for Hazardous Air Pollutants calculations.	Technetium-99 samples will be collected from the NWPGS influent (HV-82), air stripper effluent (HV-014), and effluent (HV-171).
6	Are we meeting the requirements stated in the Facility and Nuclear Safety evaluation?	If TCE or ^{99}Tc levels, flow rates, or operating system conditions exceed levels or change from the current safety evaluation, then immediate action will be taken followed by a system evaluation and other appropriate actions.	TCE and ^{99}Tc samples will be collected from the NWPGS influent (HV-082). Daily NWPGS flow rates will be calculated from operational data.

Table 3. Principal Study Questions, Decision Rules, and Data Needs (Continued)

Question/Goal		Decision rule	Data needs
7	Is the system running efficiently?	If system components are not operating within the manufacturers' specified performance criteria, then system operations will be evaluated and maintenance performed. Otherwise, operation of the NWPGS will continue as outlined in this O&M Plan and applicable maintenance and calibration specifications located in the C-612-T-02 Project Library.	Operational data (such as flow rates, pressure readings, and tank levels) will be collected. Operational samples will be collected and analyzed. The collected data will be reviewed to determine system performance. Details on operational data collection and operational samples will be included in the C-612-T-02 Project Library.
8	What groundwater volumes/flow rates are we extracting from the NWPGS extraction wells?	If the daily withdrawal volume exceeds 432,000 gal (per the Water Withdrawal Permit[b]), then the NWPGS system flow rate will be adjusted below this level.	Pumping volumes and flow rates will be recorded on a daily basis, excluding holidays and weekends, from each of the operating NWPGS extraction wells.
9	Is waste properly characterized for storage and/or disposal?	If waste is not properly characterized for storage and/or disposal, then additional sampling and analyses will be performed.	Data will be collected in accordance with applicable waste management procedures.

[a] Monitoring well groundwater sampling will be performed in accordance with Section 4.3, Effectiveness Monitoring.

[b] Water Withdrawal Permit applicable to extraction wells EW228, EW229, EW230, and EW231.

4.3.1 Hydraulic Monitoring

Hydraulic monitoring is conducted to verify the hydraulic performance of the system with regard to capture zone development, gradient manipulation and plume trajectory, assessment of effects due to changes in system operations or external hydraulic stresses, assessment of potential impacts on adjacent plumes, provide a basis for groundwater flow model refinement and/or recalibration, and refinement and optimization of system operation, if necessary. The monitoring activities described in this section will be performed during a shutdown and restart event scheduled for the summer or early fall of 2010.

Hydraulic monitoring will consist of water level measurements made in a network of monitoring wells (MWs) prior to and during the system shutdown and restart event. The spatial distribution of the recommended well network was determined in part using the three-dimensional groundwater flow model. The wells are distributed to provide sufficient water level and drawdown information to assess capture using analytical methods and to provide a three-dimensional distribution of groundwater elevations that will be used to compare with the three-dimensional flow model.

The strategies for hydraulic monitoring consist of an assessment of the drawdown stresses and resulting capture zones from the operation of the NWPGS and an evaluation of groundwater flowpaths based on water levels measured under operational conditions. This approach will require initial water level measurements taken from a series of locations prior to the system shutdown. After shutdown, water levels will be measured continuously to determine when they have recovered completely. Manual and continuous measurements through system restart will be used to determine drawdown as a result of pumping. Data collected during the entire monitoring period will provide updated information on aquifer properties and provide a basis for potential model refinement and recalibration. The groundwater flow model then can be used, in conjunction with mass transport applications, as required, to modify or optimize system operations to meet performance expectations. After the initial hydraulic assessment is completed, limited long-term hydraulic monitoring may be conducted to support additional evaluations of system performance. The hydraulic monitoring of the NWPGS will include (1) pre-shutdown monitoring, (2) shutdown/restart monitoring, and (3) limited long-term monitoring, as needed. A schedule of proposed monitoring activities is provided in Table 4.

4.3.1.1 Pre-shutdown hydraulic monitoring

An initial hydraulic monitoring event for the Northwest Plume will be conducted prior to system shutdown to characterize the hydraulic conditions in the aquifer under operational conditions. Hydraulic monitoring locations and the method of data collection during shutdown and restart are listed in Table 5 and depicted in Figure 2. Water levels in 11 of the MWs will be recorded continuously throughout system shutdown and restart (Figure 2 and Table 5). Continuous monitoring with data loggers will begin a minimum of three days prior to system shutdown. A synoptic measurement of MWs scheduled to be measured manually will be conducted within 24 hours prior to system shutdown. System shutdown should be conducted during a period that is not subject to significant precipitation (more than 0.30 inches of rainfall in 24 hours). Precipitation during system shutdown and restart will be noted. Hydraulic monitoring is proposed at 24 locations (34 screens), and 2 background locations (2 screens) (MWs located away from the areas of pumping) that will be used for the shutdown and restart.

Table 4. Northwest Plume Groundwater System Shutdown and Restart Hydraulic Monitoring Schedule

Total Days	**1**	**2**	**3** [3]	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
	Pre-Shutdown Monitoring			**Phase I**										**Phase II**									
Major Purposes	Measure Operational Water Levels			Shut System Off to Monitor System Recovery										Restart the System to Monitor Aquifer Response									
Goal	Determine Hydraulic Gradients			Near Field Aquifer Response and Aquifer Characterization										Near Field Aquifer Response and Aquifer Characterization									
Phase Day	**1**	**2**	**3**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Extraction Well Rates (in gpm)																							
EW232	110	110	**Pre-Shutdown Monitoring**	0	0	0	0	0	0	0	0	0	**Pre-Restart Monitoring**	110	110	110	110	110	110	110	110	110	110
EW233	110	110		0	0	0	0	0	0	0	0	0		110	110	110	110	110	110	110	110	110	110
Total Extraction Rate	220	220	220	0	0	0	0	0	0	0	0	0	0	220	220	220	220	220	220	220	220	220	220
Monitoring Activities																							
Data Logger Monitoring[1]	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Daily Manual Monitoring (Start-up)			X	X	X	X	X		X[2]		X[2]		X[2]	X	X	X	X		X[2]		X[2]		X[2]

Notes:

Pre-shutdown monitoring will be conducted while the system is operating at design flow rates.

Pre-restart monitoring will be completed prior to restart of pumping.

Duration of Phase I and Phase II may be shorter if recovery to steady state water levels is less than 10 days.

[1] Recording intervals are specified in the text.

[2] Monitoring will only be conducted if water levels have not reached steady-state conditions as specified in Section 4.

[3] Synoptic monitoring will be conducted within 24 hours prior to system shutdown.

gpm = gallons per minute

Table 5. Northwest Plume Groundwater System Hydraulic Monitoring Wells

Monitoring Well ID	Completion Interval	Continuous Logger (C)/ Manual (M)
MW63	URGA	M
MW65	RGA	M
MW66	URGA	M
MW106	MRGA	M
MW165	URGA	M
MW173	URGA	M
MW185*	MRGA	C
MW242	MRGA	C
MW243	MRGA	M
MW245*	MRGA	C
MW248	MRGA	M
MW250	MRGA	M
MW257	MRGA	M
MW261	LRGA	M
MW262	LRGA	C
MW339*	LRGA	C
MW340	LRGA	M
MW353	RGA	M
MW355	LRGA	C
MW428	LRGA	M
MW429A	URGA	M
MW430	LRGA	C
MW457	URGA	M
MW458	LRGA	M
MW459	URGA	M
MW460	LRGA	C
MW461	URGA	M
MW462	LRGA	C
MW497	URGA	M
MW498*	LRGA	C
MW499	URGA	M
MW500*	LRGA	C
MW503	URGA	M
MW504*	LRGA	M
Background Monitoring Wells		
MW201	LRGA	C
MW253	LRGA	C

* Denotes a continuously monitored well, with a recording interval of 1 minute for the initial 12 hours of each test phase.

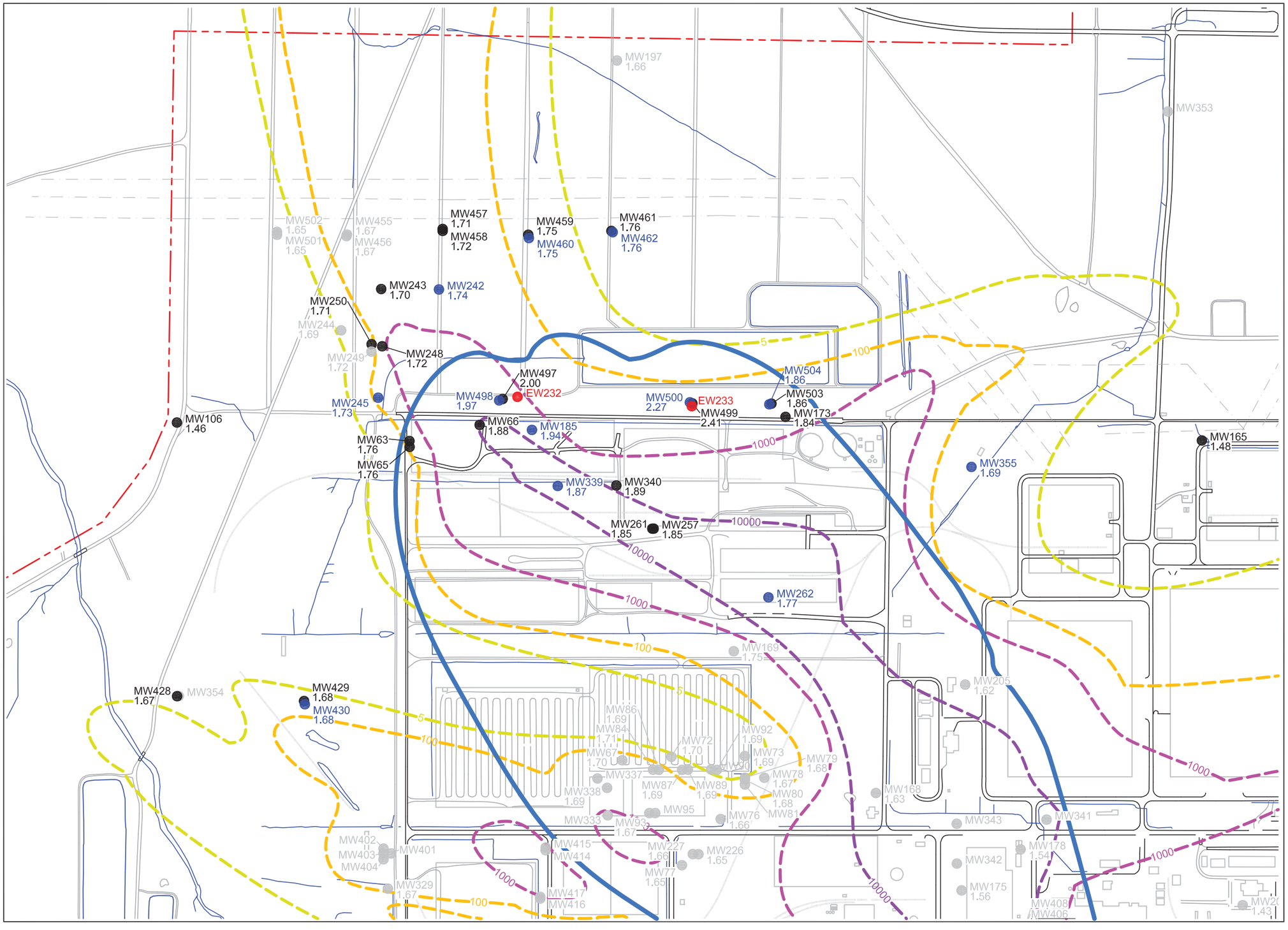

Figure 2.

Northwest Plume Groundwater System Effectiveness Monitoring Hydraulic Wells

Paducah Gaseous Diffusion Plant
Paducah, Kentucky

Legend

- EW233 — Extraction Well
- MW165 1.48 — Monitoring Well (with Model-Predicted Drawdown in Feet) to be Manually Measured During Shutdown/Restart
- MW355 1.69 — Monitoring Well (with Model-Predicted Drawdown in Feet) to be Monitored Continuously with Data Loggers During Shutdown/Restart
- MW205 — Monitoring Well (not in network)
- Northwest Remedial System Model-Predicted Capture Zone Outline

2007 TCE Contours
- 5 µg/L
- 100 µg/L
- 1000 µg/L
- 10000 µg/L

Note:
Background wells are not depicted.

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4.3.1.2 System shutdown and restart monitoring

System shutdown and restart monitoring will be conducted to obtain information that can be used to characterize aquifer properties and to evaluate the response of the aquifer to hydraulic stresses imposed by operational pumping. Continuous water level measurements will be collected with data loggers, and periodic manual monitoring of water levels will be taken using water level meters.

The primary objectives of the shutdown/restart monitoring is to record changes in water levels in MWs during shutdown and restart of the remedial system, quantify aquifer response to the pumping stress, provide information on the three-dimensional hydraulic zone of influence for the EWs, validate model predicted stress, quantify system capture zone development, and provide data to develop a more representative groundwater model to support system optimization, if needed. The following is the testing sequence.

Phase I—Shutdown of Operation: At a predetermined time, well field operations will be halted, allowing the aquifer to return to ambient conditions. The system will be shutdown between four and ten days to ensure full recovery to ambient (unstressed) conditions. Monitoring includes continuous monitoring using data loggers and manual water level measurements. Background wells also will be measured. Wells designated for manual measurement will be measured daily for the first four days after shutdown. After the first four days, if necessary, manual measurements will be collected every two days until water levels have fully recovered. Near steady-state conditions will be confirmed from water levels in MWs equipped with data loggers. For the purposes of this test, near steady-state conditions will be achieved when the water level change is less than 0.05 ft within an hour at continuously monitored wells near the EW locations. Following determination of steady-state conditions, a final manual measurement of all of the wells in the hydraulic network will be conducted prior to system restart.

Phase II—System Restart: Both EWs will be operated at design rates and monitored for a minimum of ten days to approximate the composite steady state drawdown effects under operational conditions. Heads in the hydraulic well network will be monitored to assess aquifer response to the pumping stress. As in Phase I testing, wells designated for manual measurement will be measured daily for the first four days, and every two days afterwards, if necessary, until steady-state conditions are reached. Near steady-state is considered to be achieved when the log-time versus drawdown for the observation wells plots linearly on a semi-log plot, or the water level change in distant observation wells is less than 0.05 ft for a one-hour period in continuously monitored wells. After Phase II of testing is complete, no system shutdown is proposed and the system will continue operational phase pumping at design flow rates.

Data logger recording intervals will be every five minutes for most of the testing period, with the exception of loggers in select near-field wells, where the recording interval will be one-minute for the first 12 hours of each phase of the test (Table 4). Following this period, data collection will be at five minute intervals. Most commercially available data loggers provide pre-programmed stepped interval logging, or programmable options to accommodate a variable frequency sampling structure that is consistent with the data collection requirements. Precipitation in the area during the test periods will be recorded daily. The water level monitoring will be conducted in accordance with applicable technical procedures.

To provide regional water level variation during the shutdown-restart test, two MWs will be monitored periodically as background wells (Table 4). Although these wells are far removed from the EWs, it is possible that water levels at these locations could be affected by turning the pumps on or off due to the widespread drawdown predicted by the model. It is also possible that the time for pumping stresses to propagate through the aquifer to these remote locations will be longer than the time required to reach

steady state in the remaining well network. Data from the background MWs will be used to assess regional trends during the test.

Following Phase I and II monitoring, water levels collected at hydraulic monitoring locations will be used to construct a potentiometric surface map and determine hydraulic gradient direction and magnitude in the vicinity of the MW network. It is possible that the water level data may not be sufficient or appropriate for this type of analysis. In this event, additional MWs or piezometers may be required to appropriately document hydraulic gradients. The need for additional monitoring locations in support of an additional hydraulic monitoring event will be evaluated at the time of shutdown/restart data analysis.

4.3.1.3 Long-term hydraulic monitoring

Depending on the longevity of the remedial system and the timing of the shutdown of PGDP, additional synoptic measurements may be necessary to characterize flow directions in the absence of anthropogenic recharge and potential affects on system performance. Model predictions indicate that after plant shutdown lower rates of anthropogenic recharge will lessen the hydraulic gradient in the vicinity of the system, resulting in a larger capture zone, although flow trajectories are predicted to change. At that time, it may be necessary to reevaluate the potentiometric surface in relation to the remedial system and C-400 location to ensure that the Northwest ROD remedial action objectives are being met.

Water level measurements associated chemical monitoring under the Environmental Monitoring Program (EMP) will provide continuing data to assess gradient development and potential changes in hydraulic stress over time.

4.3.2 Chemical Monitoring

Chemical monitoring of the NWPGS will focus on several areas within and near the plume to achieve the monitoring objectives. The chemical monitoring prescribed in this section is intended to provide a basis for determining if the objectives of the ROD are being met. Table 6 lists the MWs selected for chemical monitoring and the monitoring frequency for each well. Due to the continuing source of TCE to the plume from the vicinity of C-400 Building, the bulk of the chemical monitoring will focus on areas downgradient of the EWs, beyond the anticipated stagnation points of the EW capture zones, and cross-gradient of the remedial system. Fewer wells are proposed for monitoring the interior of the plume, where more stable concentration trends are expected, with fluctuations primarily due to heterogeneities in the plume or slight changes in flow paths as a result of system operation. The fate and transport modeling of remedial system operation indicates TCE concentrations in downgradient wells could begin to decline shortly after the system is started and, in several cases, within the first year of operation. MWs crossgradient to the remedial system such as wells MW245, MW248, MW250, and MW355 will be used to help characterize concentrations outside of the capture zone of the system.

4.3.2.1 Baseline monitoring

All of the wells in the chemical monitoring network are currently monitored under the EMP and with the exception of the wells installed during the fall and winter of 2009, the wells have a significant sampling history. Graphs of TCE concentrations in these wells are contained in *Trichloroethene and Technetium-99 Groundwater Contamination in the Regional Groundwater Aquifer for Calendar Year 2007 at the Paducah Gaseous Diffusion Plan, Paducah, Kentucky,* (DOE 2009) and indicate that concentrations are relatively stable over time, and trends are readily identifiable. Based on the relative stability of

Table 6. Northwest Plume Groundwater System Chemical Monitoring Wells

Monitoring Well ID	Completion Interval	Monitoring Frequency (see notes)
MW63	URGA	B
MW65	LRGA	B
MW66	URGA	B
MW165	URGA	B
MW173	URGA	B
MW242	MRGA	A
MW243	MRGA	A
MW244	MRGA	A
MW245	MRGA	A
MW248	MRGA	A
MW250	MRGA	A
MW339	LRGA	B
MW340	LRGA	B
MW355	LRGA	B
MW428	LRGA	B
MW429A	URGA	B
MW430	LRGA	B
MW455	URGA	A
MW456	LRGA	A
MW457	URGA	A
MW458	LRGA	A
MW459	URGA	A
MW460	LRGA	A
MW461	URGA	A
MW462	LRGA	A
MW497	URGA	A
MW498	LRGA	A
MW499	URGA	A
MW500	LRGA	A
MW501	URGA	A
MW502	LRGA	A
MW503	URGA	A
MW504	LRGA	A

Monitoring Frequency:

A - Wells will be sampled quarterly for the first 2 years after system startup, and semiannually afterwards.

B - Wells will be monitored semiannually.

concentration trends in individual wells, a pre-start-up baseline sampling event is not proposed. The baseline concentration at each MW will be taken from the most recent TCE sample result from the well in the six months prior to start-up of EW232 and EW233. Any well in the chemical monitoring network that has not been sampled for TCE within this six month time frame will be sampled prior to start-up of the EWs.

4.3.2.2 Long-term monitoring

Periodic monitoring of the well network will be performed to characterize the Northwest Plume and help determine the effectiveness of system performance. The monitoring frequency will vary, depending on the well location (Table 6). TCE concentrations in MWs located downgradient and outside of the capture zone of the remedial system will be important for evaluating system effectiveness. These wells, along with several near-field wells and wells located crossgradient to the system will be monitored on a quarterly basis for the first two years following system start-up. Afterward, all wells will be sampled on a semiannual basis. Wells to be monitored on a semiannual basis from system startup generally are located upgradient of the EWs or peripheral to the system where TCE concentrations generally are not expected to fluctuate significantly as a result of system operation (Figure 3).

EWs will be sampled at start-up, monthly for 6 months, and then quarterly after that. EWs will be sampled at sampling ports under normal operating conditions.

4.4 DATA EVALUATION

This section discusses the methods and techniques that are planned for use in evaluating the effectiveness of the remedial system.

4.4.1 Hydraulic Data

The evaluation of hydraulic data will include an analysis of pre-shutdown, shutdown, and restart data. In some instances, these data will be compared to model-predicted data in order to determine the need for model recalibration and then to use the model to support system performance/capture zone evaluations. Analytical evaluation of hydraulic data will be conducted to determine aquifer transmissivity and potentiometric maps will be contoured to determine observed hydraulic gradient direction and magnitude.

4.4.1.1 Pre-shutdown hydraulic data

Pre-shutdown (operational) hydraulic data will be compiled and analyzed to develop a potentiometric map of hydraulic head under pumping conditions. Hydraulic gradient direction and magnitude will be displayed on the map. Vertical gradients under operational conditions will be tabulated at nested monitoring locations. Potentiometric contours will be developed using a software program such as Surfer©.

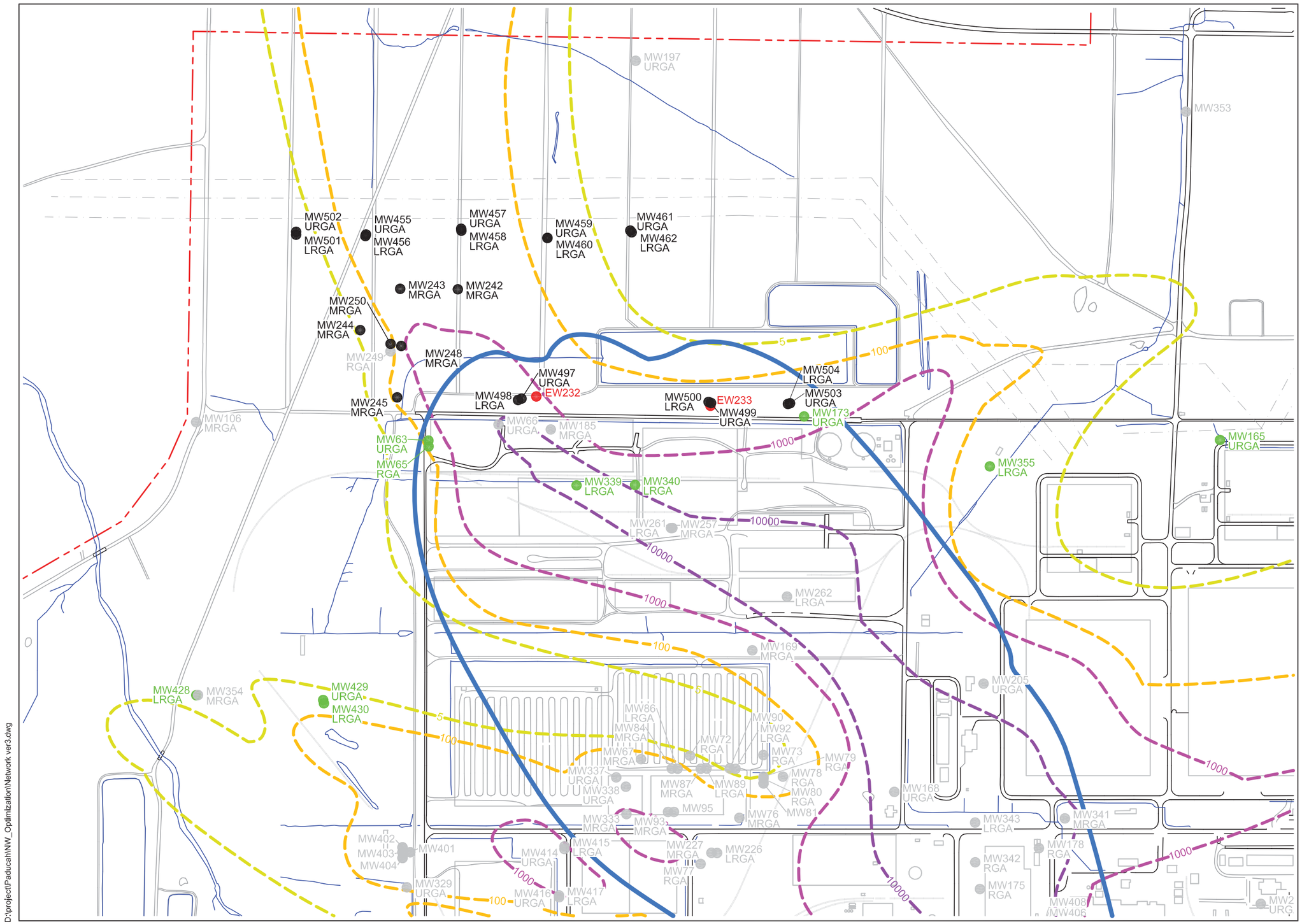

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Figure 3.

Northwest Plume Groundwater System Effectiveness Monitoring Chemical Wells

Paducah Gaseous Diffusion Plant
Paducah, Kentucky

Legend

- EW233 Extraction Well
- MW428 LRGA Monitoring Well with Network Designation to be Sampled on "A" **Frequency**
- MW428 LRGA Monitoring Well with Network Designation to be Sampled on "B" **Frequency**
- MW205 Monitoring Well (not in network)
- Northwest Remedial System Model-Predicted Capture Zone Outline

Monitoring Well Designation
LRGA Lower Regional Groundwater Aquifer
MRGA Middle Regional Groundwater Aquifer
URGA Upper Regional Groundwater Aquifer

2007 TCE Contours
- 5 µg/L
- 100 µg/L
- 1000 µg/L
- 10000 µg/L

0 250 500 1000
Scale in Feet

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4.4.1.2 Shutdown and restart hydraulic data

Hydraulic data from system start-up monitoring and testing will be compiled and analyzed using a variety of methods, including these:

- Hydrograph and gradient analysis;
- Time vs. drawdown and distance-drawdown analyses; and
- Delineation of drawdown.

Groundwater hydrographs are useful for illustrating the sensitivity of different aquifer intervals to pumping. Aquifer response is quantified at the fundamental level by examining hydrographs (e.g., water level changes in individual wells as a function of time). After heads have stabilized, maps of mounding and drawdown will be prepared to show the geometry of the zone of influence of the extraction system. It is possible the zone of influence may extend beyond the hydraulic network based on model predictions.

Horizontal and vertical gradients will be calculated based on MW data collected prior to and during system start-up. This data will be used to evaluate the hydraulic stress in the aquifer due to system operation. Flow rate calculations will be made to help verify that the pumping rates of the EWs are appropriate to capture the groundwater flux across the plume extent. An estimated flow rate calculation is developed using the following equation (EPA 2008):

$$Q = K * (b * w) * i * factor$$

Where:

Q = extraction rate

K = hydraulic conductivity

b = saturated thickness

w = plume width

i = regional (non-operational) hydraulic gradient

factor = "rule of thumb" is 1.5 to 2.0, intended to account for other contributions to the pumping well such as flux from a river or induced vertical flow from another stratigraphic unit

In addition, capture zone width calculations will be performed using analytical methods for each well based on pumping rates, hydraulic gradient, and observed hydraulic conductivity values. The analytical solution of Javandel and Tsang (1986) will be used to delineate the capture zone for the EWs, using site-specific parameters. The Javandel and Tsang (1986) method is an analytical solution suitable for a fully penetrating well in an isotropic aquifer.

The capture zone of a single pumping well can be defined using the following equation (Javandel and Tsang 1986):

$$Y = \pm Q/(2BU) - Q/(2 \pi BU) \tan^{-1}(Y/X)$$

Where:
B = aquifer thickness (or pumping well screen length)

Q = well discharge rate
U = regional flow gradient
X = distance along flow direction
Y = distance perpendicular to flow direction

For various Q/BU values, a series of capture zone curves can be developed where the higher the Q/BU value, the larger the capture zone.

Hydraulic conductivity values will be calculated based on observed hydraulic response in nearby existing and new MWs during aquifer testing. Several analytical solutions are applicable for a pumping test in a confined/semiconfined aquifer like the one at PGDP, including these:

- Theis (1935)—applicable for a fully penetrating pumping well;
- Cooper and Jacob (1946)—applicable for a fully penetrating pumping well;
- Hantush and Jacob (1955)—applicable for a leaky confined aquifer;
- Moench (1985)—applicable for a leaky confined aquifer.

A time-drawdown analysis will be conducted for each continuously monitored observation well to derive estimates of hydraulic conductivity. A distance-drawdown analysis may be used for all the observation wells at once. In an ideal homogeneous aquifer, a straight-line method (Jacob's approximation solution) can be used in a distance-drawdown graph to derive an overall transmissivity (Cooper and Jacob 1946). This value for overall transmissivity then will be compared with the transmissivities derived from each individual well by the time-drawdown analysis. Depending on the results of the transmissivity evaluations and the model-predicted and observed response at monitoring locations in the hydraulic network, the groundwater flow model may require recalibration prior to redeveloping the capture zone configuration with particle tracking. The results of these analyses will be provided for information to U.S. Environmental Protection Agency (EPA), the Commonwealth of Kentucky, and to PGDP Groundwater Modeling Working Group.

4.4.1.3 Long-term hydraulic data

Future changes in plant operations that may significantly affect flow patterns in the vicinity of the remedial system may require additional investigation. At that time, measurement of water levels in the hydraulic MW network or another set of appropriate wells may be required to determine flow trajectories and potential effects on system operation.

4.4.2 Chemical Data

Chemical data will be evaluated to identify TCE concentration trends for wells in the monitoring network. The results of periodic and long-term contaminant monitoring, conducted prior to and after system start-up will be tabulated and provided to stakeholders for review semiannually, as described in Section 4.5. These tables will be designed to facilitate observation of trends over time. Graphs showing changes over time also will be developed, as needed. TCE mass capture from system operation will be calculated based on EW samples and flow rates.

Statistical analyses may be used to compare data sets or to assess trends over time, including calculation of summary statistics and determining the significance of trends. These statistical techniques may include comparative analyses, multivariate comparison, trend analysis, linear regression, variable correlation, and multivariate correlation. These analyses often are problem specific and may or may not be relevant to

addressing the objectives of NWGPS effectiveness monitoring. Regardless, the data density from the proposed monitoring network is sufficiently robust to provide the data necessary, should a statistical analysis be required.

Operational adjustments to maximize the efficiency of the remedial systems may be recommended based partially on a review of influent concentrations and mass capture results. The long-term monitoring data will be used to assess potential issues of long-term plume fate that may be related to potential long-term optimization efforts.

As part of data evaluation, the monitoring network will be reevaluated periodically to ensure that the objectives of the effectiveness monitoring program are being obtained. Over time, changes in plume configuration or flow trajectories may require modification to the MW network to provide appropriate coverage.

4.5 REPORTING SUMMARY

Analysis of all hydraulic and chemical data will be presented in the Semiannual Progress Reports in accordance with the *Federal Facility Agreement for the Paducah Gaseous Diffusion Plant* (FFA), DOE/OR/07-1707 (EPA 1998a). The first semiannual report will include an assessment of system operational history for the period, in-plant effectiveness at treating the extracted groundwater, and an assessment of future proposed sampling frequencies. An assessment of the shutdown/restart hydraulic monitoring and quarterly/semiannual chemical monitoring results for the first six months of operation will be presented in a semiannual report within one year of system startup. Validated chemical data will be included in the semiannual progress reports, as available. If appropriate, the results of flow model revisions will be presented along with recommendations for revisions to the monitoring program or system operations.

4.6 SAMPLING AND ANALYSIS, QUALITY ASSURANCE AND QUALITY CONTROL

A summary table of sampling, analysis, and data collection is presented below in Table 7.

4.6.1 Sampling and Analysis

Analytical data consist of both field screening data and definitive data based on data needs determined in the project-specific DQOs. Analyses of TCE and of other analytes to satisfy the decision rules are performed using the modified EPA SW-846 methods as described in *Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods* (EPA 1998b). Analyses of ^{99}Tc are performed using a liquid scintillation counter. Specific sampling parameters and requirements are provided in the QA Plan and the DMIP.

Specific quality control (QC) samples are collected to monitor the effectiveness of the sampling procedures and laboratory methods. QC samples are collected, as needed, which may include field blanks, duplicate samples, equipment rinseates, and trip blanks. Additional information is provided in the QA Plan and DMIP.

4.6.2 Data Review

The data review process consists of the verification, validation, and assessment of the field measurements and analytical results received from the laboratory. Data verification is performed on all analytical data to

Table 7. Summary of Sampling, Analysis, and Data Collection

Sample point(s)	Parameters	Frequency[a]	Decision rule (refer to Table 2)
Extraction wells EW232, EW233 (EW230 and EW231 if returned to service)	Pump Rates	Daily	#6
	Water Levels	Weekly	#6
	TCE, ^{99}Tc, Gross Alpha/Beta	see Note[b]	#6
Monitoring Wells[c]	Routine groundwater monitoring parameters[c]	see Section 4.3	#1
System influent (HV-082)	TCE	Monthly	#4, #6
	^{99}Tc	Monthly	#5, #6
	Si, Fe, Mn, VOCs	Quarterly[d]	NA
	Calcium hardness	Quarterly	NA
	Sulfates, Alkalinity	Semiannually	NA
System effluent (HV-171)	TCE	see Note[e]	#2, #3, #4
	^{99}Tc	see Note[e]	#2, #5
Air stripper effluent (HV-014)	^{99}Tc	Monthly[f]	#5
System ion exchange units	^{99}Tc	Monthly[g]	NA
Operational data	Multiple[h]	Daily and weekly	#6, #7

[a] Frequency definitions are as follows: Daily—one sample per day excluding weekends and holidays.
Weekly—one sample per calendar week.
Bimonthly—two samples per calendar month.
Monthly—one sample per calendar month.
Quarterly—one sample every 3 months, with samples no more than 4 months apart.
Annually—one sample each fiscal year no less than 3 months apart.

[b] The new EWs will be sampled monthly for the first 6 months of operation and then quarterly after that.

[c] These samples are collected and analyzed under the Environmental Monitoring Program. A list of wells is provided in Sect. 4.3.

[d] These samples are necessary to identify changes in dissolved metal concentrations which may affect the operational performance of select unit processes (sand filters, air stripper, and ion exchange columns).

[e] TCE and ^{99}Tc samples will be collected daily for the first 3 months after start up of EW232 and EW233 to monitor performance of the treatment system under the expected higher concentrations of TCE and ^{99}Tc in the groundwater. The sampling frequency will be changed to weekly after three months if the treatment system operational goals are being met.

[f] This sample must be taken on the same date and approximate time as the monthly system influent sample (HV-082).

[g] Samples will be collected from each lead column (two columns are in the lead position). The ^{99}Tc data generated will be used to forecast and determine breakthrough of the ion exchange resin.

[h] Operational data collection parameters include pressure, flow rates, tank levels, and others. For details, refer to procedure PAD-ENR-0017, *Northwest/Northeast Plume Daily Operational Data Collection and Maintenance.*

Note: The Operations Manager temporarily may increase sampling to support operational troubleshooting. Sampling will be temporarily suspended when the facility is shut down or other operational conditions exist that would make sampling impractical.

determine if the number of samples, analytical and field methods, parameters, and other requirements are met. The data validation process determines whether proper QC methods are used and whether the results meet established QC criteria. Validation is performed in accordance with the DMIP at a target frequency of a minimum of 5% (1 out of every 20 data packages). Data verification, validation of off-site laboratory data, and assessment is performed according to procedure PAD-ENM-5003, *Quality Assured Data.* NWPGS personnel perform verification of 100% of on-site laboratory data. Data assessment consists of a review of DQOs and the sampling and analysis plan. Any problems found during the review process are documented and resolved.

4.6.3 Quality Assurance and Quality Control

Information pertaining to QA/QC, such as equipment calibration and maintenance for the NWPGS, specific sampling and analytical procedures, personnel responsibilities, training, and corrective actions, is discussed in applicable procedures, the QA Plan, and the DMIP.

4.6.4 Corrective Action Procedures

NWPGS O&M personnel are responsible for identifying conditions adverse to quality and informing the operations manager. Corrective action procedures require that conditions adverse to quality be identified and documented, and corrective action should be taken and verified in accordance with the QA Plan and the DMIP.

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5. DESCRIPTION OF ALTERNATE O&M

The NWPGS is designed to operate 7 days per week and 24 hours per day. Shutdowns of the NWPGS are addressed in the quickest possible manner to ensure minimum downtime and prevent adverse effects on equipment. System program interlocks, mechanical protection devices (e.g., pressure relief valves), and the autodialer help protect against equipment damage and promote worker safety. Manufacturers' reference manuals, work plans, guidance documents (e.g., the HASP and the Maintenance and Calibration Plan), and procedures/work instructions provide guidance to NWPGS personnel so that operations will be conducted safely and efficiently. Because temporary shutdown of the NWPGS does not endanger workers, the public, or the environment, an alternate O&M Plan is not necessary.

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6. ENVIRONMENT, SAFETY, AND HEALTH PLAN

The HASP was developed for the NWPGS using pertinent information about the site, potential contaminants and hazards that may be encountered, and hazards inherent to routine activities performed during NWPGS operations. The HASP can be found in trailer C-612-T-02.

An Integrated Safety Management System (ISMS)/Environmental Management System (EMS) is implemented on all work performed at the NWPGS. The ISMS/EMS process integrates environment, safety, and health controls into management and work practices at all levels. This is achieved by the implementation of five safety management functions into all phases of work. These functions consist of defining the scope of work, analyzing hazards, developing and implementing controls, performing work, and providing feedback and continuous improvements. The ISMS/EMS is a fundamental element in the safety and environmental protection program for the NWPGS.

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7. DESCRIPTION OF EQUIPMENT

This section describes equipment associated with the NWPGS, including monitoring components, as well as equipment maintenance and replacement. Figure 4 presents a schematic of the groundwater treatment system, including all major components.

7.1 EQUIPMENT IDENTIFICATION

The NWPGS is composed of several operating systems that are described in detail in the Northeast/Northwest Plumes Reference Manual. These systems include the following:

- Groundwater EWs, well pumps, and pipeline system
- EQ pump and tank
- Pretreatment and filter system
- Air stripper and vapor-phase carbon system
- Ion exchange and resin dewatering system
- Backwash supply and treated water discharge system
- Compressed air system
- Instrument and control systems
- Sump and building systems

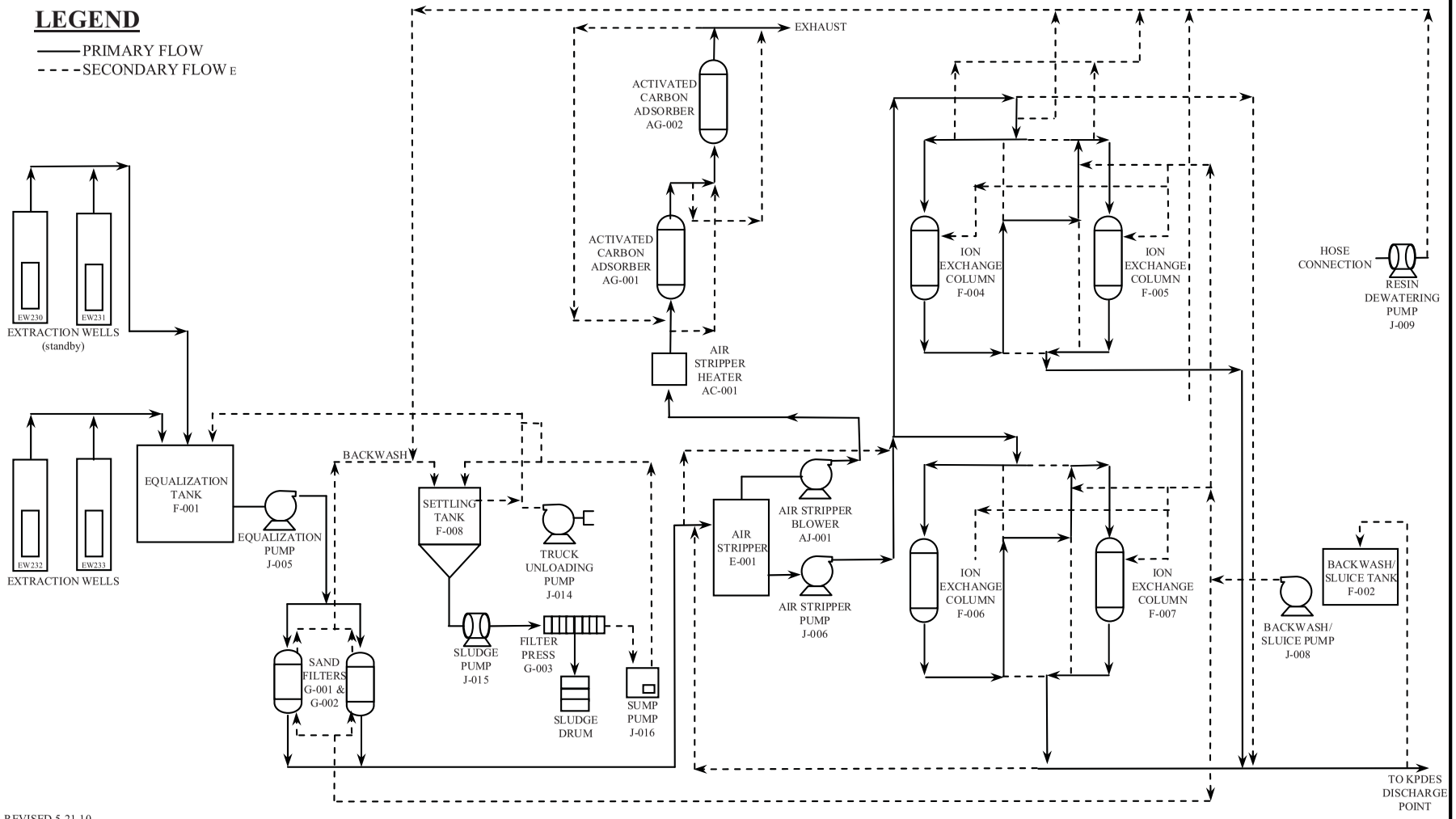
Groundwater from the EWs is transferred through a pipeline to the EQ tank at the NWPGS. Water is pumped from the EQ tank through the sand filters before being treated by the air stripper for TCE removal (see Figure 2). Vapors from the air stripper are passed through granular activated carbon for TCE removal before they are released into the atmosphere. Water from the air stripper discharge enters ion exchange columns for ^{99}Tc removal before being discharged to DOE KPDES Outfall 001.

7.2 MONITORING COMPONENTS

Five secured manhole monitoring stations, with leak detection probes, are located along the transfer line from the EWs. Should a leak occur, an alarm signal is displayed at the main system control panel and the corresponding EW pump(s) will shut down automatically.

Local control panels for system monitoring are located at each EW, the sand filter skid, and the air stripper skid. Each EW pump has a flowmeter/totalizer, pressure gauge, and HIGH and LOW pressure sensor that will initiate a shutdown of the pumps at pre-set pressure levels. Additionally, the PLC will shut down the pump(s) when manually prompted by the operator, when the EQ tank level is high, or when a leak is detected in the pipeline. After shutdown, the pump(s) are manually restarted at the main system control panel only after all alarm conditions have been cleared. The main system control panel is located inside the NWPGS facility and has a graphic display of the system, an operator interface unit, and the PLC. A TCE online analyzer is used to monitor effluent TCE concentrations and has a high-level alarm linked to the PLC.

NORTHWEST PLUME GROUNDWATER SYSTEM
PROCESS FLOW DIAGRAM



U.S. DEPARTMENT OF ENERGY
DOE PORTSMOUTH/PADUCAH PROJECT OFFICE
PADUCAH GASEOUS DIFFUSION PLANT

Figure 4. Northwest Plume Groundwater System Process Flow Diagram

LATA Environmental Services of Kentucky, LLC

7.3 MAINTENANCE OF SITE EQUIPMENT

Equipment replacement, calibration, and maintenance are performed in accordance with the manufacturers' recommendations. Detailed information on required maintenance and calibration activities are included in the Maintenance and Calibration Plan.

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8. RECORDS AND REPORTING

8.1 PROJECT RECORDS

The NWPGS operations personnel are responsible for maintaining records pertaining to NWPGS operations. Information captured and maintained includes reports of routine operations, unusual occurrences, equipment malfunctions, spills, sampling events, visitors on-site, operational data records, maintenance records, and training records.

8.2 DATA MANAGEMENT

To meet regulatory requirements for the acquisition of technically and legally defensible sampling and analytical data, a traceable audit trail is established from the development of sampling through the archiving of information in accordance with the QA Plan and the DMIP. Each step or variation of the sampling and analytical process is documented. Quality assured data is obtained through appropriate planning, adequate sampling and laboratory quality controls, and documented data review as outlined in procedure PAD-ENM-5003, *Quality Assured Data*.

8.3 PROGRAM REPORTING REQUIREMENTS

O&M information is reported to EPA and Kentucky Department for Environmental Protection in a semiannual progress report in accordance with the FFA (EPA 1998a).

This O&M Plan was developed in accordance with the FFA (EPA 1998a). It provides the NWPGS operators with background information, reporting requirements, and O&M requirements and guidelines. It also includes references to plans and procedures that aid in maintaining compliance with DOE, Federal, and Commonwealth of Kentucky policies and statutes. Training requirements and PGDP emergency response and operating procedures also are referenced. It should be emphasized that the O&M Plan is a dynamic document. Modifications and improvements to this O&M Plan will continue as methods are identified that improve the overall performance and efficiency of system operation.

8.4 EMERGENCY PROCEDURES AND NOTIFICATIONS

The HASP provides guidance on emergency procedures and notification. The plan is reviewed annually and made available for inspection by employees, supervisors, health and safety personnel, and other government agencies having relevant responsibilities. The plans address the following:

- Pre-emergency planning
- Personnel roles, lines of authority, and communication
- Emergency recognition and prevention
- Spill response
- Site security and control
- Evacuation routes and procedures
- Emergency alerting and response procedures
- Personal protective equipment and emergency equipment

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9. O&M COST ESTIMATE

The costs associated with the O&M of the Northwest Plume Groundwater System and the Northeast Plume Containment System are no longer tracked separately. O&M of the two systems has been combined under the current contract. The average annual cost for O&M of both systems based on information from fiscal years 2007 through 2009 is approximately $630,000.00. This cost is a total project cost that includes, but is not limited to, the following:

- O&M of the system
- Sampling and analysis
- Health and safety
- Data management
- Technical reporting
- Financial tracking

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10. REFERENCES

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DOE (U.S. Department of Energy) 1993. *Record of Decision for Interim Remedial Action of the Northwest Plume at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, DOE/OR/06-1143&D4.

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EPA (U.S. Environmental Protection Agency) 1998a. *Federal Facility Agreement for the Paducah Gaseous Diffusion Plant*, DOE/OR/07-1707, U.S. Environmental Protection Agency, Atlanta, GA, February 13.

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PRS 2006b. *Data Management Implementation Plan for the Paducah Plume Operations at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, PRS/06-003, April.

PRS 2008a. *Health and Safety Plan for the Paducah Plume Operation, Paducah, Kentucky,* PRS/PROJ/0067, October.

PRS 2008b, Paducah Plume Operations Maintenance, Calibration, and Testing Plan, PRS-ENM-001, January

Theis, C. V. 1935. "The Relation between the Lowering of the Piezometric Surface and the Rate and Duration of Discharge of a Well Using Groundwater Storage," *Am. Geophys. Union Trans*., 16: 519-524.

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APPENDIX

PRS/LATA KENTUCKY PERFORMANCE DOCUMENT CROSSWALK

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PRS/LATA Performance Document Crosswalk

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PRS/PROG/0013	Groundwater Protection Management Program, PGDP	PRS/PROG/0013	PAD-PROG-0013
PRS/PROG/0014	Environmental Compliance & Protection Program Description for PRS	PRS/PROG/0014	PAD-PROG-0014
PRS/PROG/0015/R1	Pollution Prevention/Waste Minimization Program Plan for the DOE Paducah Remediation Project	PRS/PROG/0015/R1	PAD-PROG-0015
PRS/PROG/0016/R1	Project Training Program Description for the Paducah Environmental Remediation Project	PRS/PROG/0016/R1	PAD-PROG-0016
PRS/PROG/0019	List of Active Safety Systems (LASS) and List of Design Features (LDF)	PRS/PROG/0019	PAD-PROG-0019
PRS/PROG/0020/R1	Electrical Safety Program Paducah Environmental Remediaton Project	PRS/PROG/0020/R1	PAD-PROG-0020
PRS/PROG/0028	Respiratory Protection Program for PRS	PRS/PROG/0028	PAD-PROG-0028
PRS/PROG/0030	Fire Protection Program Description for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky	PRS/PROG/0030	PAD-PROG-0030
PRS/PROG/0034/R1	Chemical Safety Management Program for PRS	PRS/PROG/0034/R1	PAD-PROG-0034
PRS/PROG/0037/R1FC1	Nuclear Safety Program Description for the Paducah Environmental Remediation Project	PRS/PROG/0037/R1FC1	PAD-PROG-0037
PRS/PROG/0039 (Prev. PRS-WCE-0009)	System Engineering Program for the Paducah Environmental Remediation Project	PAD/PROG/0039	PAD-PROG-0039
PRS/PROG/0041/R1	Chronic Beryllium Disease Prevention Program (CBDPP) Paducah Remediation Services Project		PAD-PLA-HS-003
PRS/PROG/0080 R1 FC1	Health and Safety Plan for Decontamination and Decommissioning of the C-746-A East End and Smelter at the PGDP	PRS/PROG/0080 R1FC1	PAD-PROG-0080
PRS/PROG/0097	Software Quality Assurance Plan for Master RAD Calc Sheet	PRS/PROG/0097	PAD-PROG-0097
PRS/PROJ/0003/R1	Bayou Creek and Little Bayou Creek Revised Watershed Monitoring Plan PGDP	PRS/PROJ/0003/R1	PAD-PROJ-0003
PRS/PROJ/0008	Facility Authorization Basis Management Plan for the C-416 Decontamination Pad	PRS/PROJ/0008	PAD-PROJ-0008
PRS/PROJ/0011	Waste Management Plan for the Soil Pile Sampling and Analysis	PRS/PROJ/0011	PAD-PROJ-0011
PRS/PROJ/0022	Health and Safety Plan for PRS Waste Disposition Operations	PRS/PROJ/0022	PAD-PROJ-0022
PRS/PROJ/0025/R0FC1	Monitoring Well Maintenance Implementation Plan for the PGDP	PRS/PROJ/0025/R0FC1	PAD-PROJ-0025
PRS/PROJ/0032/R1FC1	Health and Safety Plan for Decontamination and Decomissioning of the C-340 Metal Reduction Complex at the PGDP	PRS/PROJ/0032/R1FC1	PAD-PROJ-0032
PRS/PROJ/0035/R1	Configuration Management Plan for the C-410 D&D Project	PRS/PROJ/0035/R1	PAD-PROJ-0035
PRS/PROJ/0045	Health and Safety Plan for C-746-D Yard and C-746 Scrap Metal Yards Project Activities	PRS/PROJ/0045	PAD-PROJ-0045
PRS/PROJ/0061/R1FC1	Site Specific Health and Safety Plan for the Environmental Monitoring Project	PRS/PROJ/0061/R1FC1	PAD-PROJ-0061
PRS/PROJ/0067/R1FC1	Health and Safety Plan for the Paducah Plumes Operations	PRS/PROJ/0067/R1FC1	PAD-PROJ-0067
PRS/PROJ/0068/R0FC1	Health and Safety Plan for the C-400 Interim Remedial Action	PRS/PROJ/0068/R0FC1	PAD-PROJ-0068
PRS/PROJ/0080/R1FC1	Health and Safety Plan for Decontamination and Decommissioning of the C-746-A East End Smelter at the PGDP	PRS/PROJ/0080/R1FC1	PAD-PROJ-0080
PRS/PROJ/0085	Software Quality Assurance Plan for MCNPS Version 1.4	PRS/PROJ/0085	PAD-PROJ-0085
PRS/PROJ/0087	Chemical Hygiene Plan for the C-755-T-08 Laboratory Trailer and the C-755-C Building and Mobile lab	PRS/PROJ/0087	PAD-PROJ-0087
PRS/PROJ/0093	Waste Characterization Plan for the Surface Water Operable Unit (On-Site) Removal Work Action at the PGDP	PRS/PROJ/0093	PAD-PROJ-0093
PRS/PROJ/0094	Surface Water Operable Unit (On-Site) Removal Action and Soils Operable Unit Inactive Facilities (C-410-B) Removal Action Waste Handling Plan	PRS/PROJ/0094	PAD-PROJ-0094
PRS/PROJ/0096	Software QA Plan for the Open Range Comprehensive Tracking System (CTS)	PRS/PROJ/0096	PAD-PROJ-0096
PRS/PROJ/0097	Software QA Plan for the Master Rad Calc Sheet	PRS/PROJ/0097	PAD-PROJ-0097
PRS/PROJ/0099	Software QA Plan for Facility Safety Basis Inventory Database	PRS/PROJ/0099	PAD-PROJ-0099

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PRS/PROJ/0100	Contingency Plan for the Environmental Monitoring Well Network Upgrade 90-Day Accumulation Area at the PGDP	PRS/PROJ/0100	PAD-PROJ-0100
PRS/PROJ/0101	ERH Installation Checklist	PAD/PROJ/0101	PAD-PROJ-0101
PRS/PROJ/0102/R1	C-400 Commisssioning Plan for Phase 1, Soil Vapor and Groundwater Treatment Systems, C-400 Cleaning Building, PGDP	PRS/PROJ/0102/R1	PAD-PROJ-0102
PRS/PROJ/0103	Inspection and Testing Plan, Soil Vapor and Groundwater Treatment Systems, C-400 Cleaning Building, PGDP	PAD/PROJ/0103	PAD-PROJ-0103
PRS/PROJ/0104	Paducah C-400 Project Mc2 Testing and Inspection Plan	PRS/PROJ/0104	PAD-PROJ-0104
PRS/PROJ/0106/R1	Site Specific Health and Safety Plan for the Soils and Burial Grounds Operable Units Remedial Investigations/Feasibility Studies, Paducah, Kentucky	PRS/PROJ/0106/R1	PAD-PROJ-0106
PRS/PROJ/0112	Waste Management Plan for the C-746-A East End Smelter at the PGDP	PRS/PROJ/0112	PAD-PROJ-0112
PRS/PROJ/0113/R0FC1	Contingency Plan for the C-400 IRA Treatment System CERCLA Staging Areas at the PGDP Paducah, Kentucky	PRS/PROJ/0113/R0FC1	PAD-PROJ-0113
PRS/PROJ/0114/R0FC1	Contingency Plan for the Soils Operatble Unit RI/FS Comprehensive Environmental Response, Compensation, and Liability Act Staging Area at PGDP	PRS/PROJ/0114/R0FC1	PAD-PROJ-0114
PRS/PROJ/0119	QAPP Treatment Recipe Development/Waste Treatment of Neptunium Residual Waste at the PGDP	PRS/PROJ/0119	PAD-PROJ-0119
PRS/PROJ/0123	C-746-A East End Smelter Demolition Plan	PRS/PROJ/0123	PAD-PROJ-0123
PRS/PROJ/0124	Site-Specific Environmental Health and Safety Plan	PRS/PROJ/0124	PAD-PROJ-0124
PRS/PROJ/0307/R0FC1	Paducah Waste Characterization Sampling and Analysis Plan	PRS/PROJ/0307/R0FC1	PAD-PROJ-0307
PRS/PROJ/6001/R1	Comprehensive Work Plan for the C-410 Complex Infrastructure D&D Project	PRS/PROJ/6001/R1	PAD-PROJ-6001
PRS/PROJ/6002	C-410 Complex Portable Criticality Accident Alarm System System Description	PAD/PROJ/6002	PAD-PROJ-6002
PRS-BFM-0001	Paducah Self-Assessment	PAD-BFM-0001	PAD-BM-0001
PRS-BFM-0002	Supplier's Samples	PAD-BFM-0002	PAD-BM-0002
PRS-BFM-0003/R1	Justification for Noncompetitive Procurement	PAD-BFM-0003	PAD-BM-0003
PRS-BFM-0004	Payment Terms/Invoice Approval	PAD-BFM-0004	PAD-BM-0004
PRS-BFM-0005	Prequalified Offerors/Prospective Source Lists	PAD-BFM-0005	PAD-CP-0005
PRS-BFM-0007	Appointment of Formation Teams	PAD-BFM-0007	PAD-CP-0007
PRS-BFM-0008/R1	Receipt and Evaluation of Proposals	PAD-BFM-0008	PAD-CP-0008
PRS-BFM-0009/R1	Formation, Processing, and Control of RFPs	PAD-BFM-0009	PAD-CP-0009
PRS-BFM-0010/R1	Requirements for Subcontract Closeout	PAD-BFM-0010	PAD-CP-0010
PRS-BFM-0011	Obtaining Services from Other DOE Contractors	PAD-BFM-0011	PAD-CP-0011
PRS-BFM-0012	Project Manager Requirements for Subcontract Execution	PAD-BFM-0012	PAD-CP-0012
PRS-BFM-0014	Procurement Threshold Levels	PAD-BFM-0014	PAD-CP-0014
PRS-BFM-0015/R1	Procurement Files	PAD-BFM-0015	PAD-CP-0015
PRS-BFM-0016/R1	Commercial Rental/Lease Agreements/Lease vs. Purchase	PAD-BFM-0016	PAD-CP-0016
PRS-BFM-0017/R1	Bonds	PAD-BFM-0017	PAD-CP-0017
PRS-BFM-0019	Documentation for Awards	PAD-BFM-0019	PAD-CP-0019
PRS-BFM-0020/R1	Notification and Debriefing Unsuccessful Offerors	PAD-BFM-0020	PAD-CP-0020
PRS-BFM-0021/R1	Construction Subcontracts/Davis-Bacon Act	PAD-BFM-0021	PAD-CP-0021
PRS-BFM-0022/R1	Services/Service Contract Act	PAD-BFM-0022	PAD-CP-0022
PRS-BFM-0023	Consultant/Personal Services Subcontracts	PAD-BFM-0023	PAD-CP-0023
PRS-BFM-0025/R1	Pre-Proposal Meeting	PAD-BFM-0025	PAD-CP-0025
PRS-BFM-0026/R0AC1	Amendments to Solicitations	PAD-BFM-0026	PAD-CP-0026
PRS-BFM-0027/R1	Determination of Competitive Range/Discussions	PAD-BFM-0027	PAD-CP-0027
PRS-BFM-0028/R1	Cost/Price Analysis and Certified Cost or Pricing Data	PAD-BFM-0028	PAD-CP-0028
PRS-BFM-0029	Negotiations	PAD-BFM-0029	PAD-CP-0029
PRS-BFM-0030/R1	Source Selection Methods	PAD-BFM-0030	PAD-CP-0030
PRS-BFM-0031	Types of Subcontract/Purchase Orders	PAD-BFM-0031	PAD-CP-0031
PRS-BFM-0032/R1AC1	Notification of Work Suspension	PAD-BFM-0032	PAD-CP-0032
PRS-BFM-0033/R1	Modification Process	PAD-BFM-0033	PAD-CP-0033
PRS-BFM-0034/R1	Exercising Options	PAD-BFM-0034	PAD-CP-0034
PRS-BFM-0035	Terminations	PAD-BFM-0035	PAD-CP-0035

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PRS-BFM-0036	Novation/Change of Name Agreements	PAD-BFM-0036	PAD-CP-0036
PRS-BFM-0037	Subcontracting Plans	PAD-BFM-0037	PAD-CP-0037
PRS-BFM-0038	Vendor Challenges	PAD-BFM-0038	PAD-CP-0038
PRS-BFM-0041	Travel-Espense Reimbursement Policy	PAD-BFM-0041	PAD-FA-0041
PRS-BFM-0042	Accounts Payable	PAD-BFM-0042	PAD-FA-0042
PRS-BFM-0044/R1	Paducah Purchasing Card System (P-Card)	PAD-BFM-0044	PAD-FA-0044
PRS-BFM-0045	KY Sales & Use Tax	PAD-BFM-0045	PAD-FA-0045
PRS-BFM-0046	Approval Authorities for Noncapital Expenditures, Project Commitment, and Personnel Action	PAD-BFM-0046	PAD-FA-0046
PRS-BFM-0047	Funds Management, Authorization, and Change Control	PAD-BFM-0047	PAD-FA-0047
PRS-BFM-0056/R1	Prime Contract Requirements and Subcontract Terms and Conditions	PAD-BFM-0056	PAD-CP-0056
PRS-BFM-0057	Distribution of Procurement Documents	PAD-BFM-0057	PAD-CP-0057
PRS-BFM-0058	Contractor Furnished Property	PAD-BFM-0058	PAD-CP-0058
PRS-BFM-0059	Legal Counsel Involvement in the Procurement Process	PAD-BFM-0059	PAD-CP-0059
PRS-BFM-0060/R1	Competitive Procurement Criteria	PAD-BFM-0060	PAD-CP-0060
PRS-BFM-0064	Disputes and Claims	PAD-BFM-0064	PAD-CP-0064
PRS-BFM-0065/R1	DOE Advance Notice and Consent Requirements	PAD-BFM-0065	PAD-CP-0065
PRS-BFM-0066	Approvals for EEO, OCI, and FOCI	PAD-BFM-0066	PAD-CP-0066
PRS-BFM-0067	Non-Labor Cost Correction	PAD-BFM-0067	PAD-FA-0067
PRS-BFM-0071	Development and Issue of Binding Corporate Agreements	PAD-BFM-0071	PAD-LEG-0071
PRS-BFM-0074/R1	Unauthorized Commitments	PAD-BFM-0074	PAD-CP-0074
PRS-BFM-0075/R1	Acquisition Process	PAD-BFM-0075	PAD-CP-0075
PRS-BFM-0076	Management Review of Requests for Proposals/Subcontracts	PAD-BFM-0076	PAD-CP-0076
PRS-BFM-0078/R0FC1	Software QA	PAD-BFM-0078	PAD-IT-0078
PRS-BFM-0079/R2	Safety Software Life Cycle Applications and QA Requirements	PAD-BFM-0079	PAD-IT-0079
PRS-BFM-0080 (prev. PRS-WCE-0036)	Management of Subcontractor Submittal and Deliverable Documents	PAD-BFM-0080	PAD-CP-0080
PRS-BFM-0084	Warehouse Operations	PAD-BFM-0084	PAD-CP-0084
PRS-BFM-1006	Work Release Process	PAD-BFM-1006	PAD-CP-1006
PRS-CDL-0003/R5	Project Controls System Description, Paducah Remediation Services Project	NO BLUESHEET, USE LATA DOCUMENT	PAD-PLA-PM-012
PRS-CDL-0004/R5	Project Management Plan, Paducah Remediation Project	NO BLUESHEET, USE LATA DOCUMENT	PAD-PLA-PM-013
PRS-CDL-0041/R1	Site Emergency Plan For the Paducah Remediation Project	NO BLUESHEET, USE LATA DOCUMENT	PAD-PLA-PM-008
PRS-CDL-0056/R4	Worker Safety & Health Plan, Paducah Remediation Services Project	NO BLUESHEET, USE LATA DOCUMENT	PAD-PLA-HS-001
PRS-CDL-0058/R5	Quality Assurance Program and Implementation Plan for the Paducah Environmental Remediation Project	NO BLUESHEET, USE LATA DOCUMENT	PAD-PLA-QM-001
PRS-CDL-0059/R2	Maintenance Implementation Plan, Paducah Remediation Services Project	NO BLUESHEET, USE LATA DOCUMENT	PAD-PLA-PM-009
PRS-CDL-0060/R1	Radiation Protection Program For the Paducah Remediation Services Project	NO BLUESHEET, USE LATA DOCUMENT	PAD-PLA-HS-002
PRS-CDL-0061/R2	ISMS Description and EMS Description for the Paducah Environmental Remediation Project Paducah, Kentucky	NO BLUESHEET, USE LATA DOCUMENT	PAD-PLA-SAF-001
PRS-DOC-1000/R2	Paducah Remediation Services, LLC Document Requirements and Style Guide	PAD-DOC-1000	PAD-REG-1000
PRS-DOC-1004/R1FC2	Document Numbering and Issuance	PAD-DOC-1004	PAD-RM-1004
PRS-DOC-1007/R0	Organizational Chart Process	PAD-DOC-1007	PAD-HR-1007
PRS-DOC-1009/R2AC1	Records Management, Administrative Record, and Document Control	PAD-DOC-1009	PAD-RM-1009
PRS-DOC-1014	Vital Records	PAD-DOC-1014	PAD-RM-1014
PRS-DOC-1107/R2FC1	Development, Approval, and Change Control for PRS Performance Documents	PAD-DOC-1107	PAD-PD-1107
PRS-ENM-0001/R0AC1	Paducah Plume Operations Maintenance, Calibration, and Testing Plan	PRS-ENM-0001/R0AC1	PAD-ENM-0001
PRS-ENM-0012/R0AC1	PAD Plume Operations Waste Management Plan PGDP, Paducah, Kentucky	PRS-ENM-0012/R0AC1	PAD-ENM-0012
PRS-ENM-0014	Deer Sampling	PAD-ENM-0014	PAD-ENM-0014
PRS-ENM-0015	Asbestos Waste Sampling	PAD-ENM-0015	PAD-ENM-0015
PRS-ENM-0016	Maintenance and Use of ASTM Type II Water System	PAD-ENM-0016	PAD-ENM-0016

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PRS-ENM-0017/R0AC1	Paint Chip Sampling	PAD-ENM-0017	PAD-ENM-0017
PRS-ENM-0018/R0FC1	Sampling Containerized Waste	PAD-ENM-0018	PAD-ENM-0018
PRS-ENM-0021	Temperature Control for Sample Storage	PAD-ENM-0021	PAD-ENM-0021
PRS-ENM-0022	Performing and Documenting C-404 Landfill Inspections	PAD-ENM-0022	PAD-ENM-0022
PRS-ENM-0023	Composite Sampling	PAD-ENM-0023	PAD-ENM-0023
PRS-ENM-0025/R0AC1	Paducah Environmental Monitoring Waste Management Plan, Paducah Gaseous Diffusion Plant, Paducah, Kentucky	PRS-ENM-0025/R0AC1	PAD-ENM-0025
PRS-ENM-0026/R0AC1	Wet Chemistry and Miscellaneous Analyses Data Verification and Validation	PAD-ENM-0026	PAD-ENM-0026
PRS-ENM-0027	Environmental Monitoring Inspection Procedure	PAD-ENM-0027	PAD-ENM-0027
PRS-ENM-0034/R0FC1	XRF Field Lab Analysis of Soils	PAD-ENM-0034	PAD-ENM-0034
PRS-ENM-0035/R2	Environmental Monitoring Plan Fiscal Year 2010, Paducah Gaseous Diffusion Plant, Paducah, Kentucky	PAD-ENM-0035	PAD-ENM-0035
PRS-ENM-0041	Maintenance Plan for the Environmental Indicator Signs at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky	PAD-ENM-0041	PAD-ENM-0041
PRS-ENM-0811	Pesticide and PCB Data Verification and Validation	PAD-ENM-0811	PAD-ENM-0811
PRS-ENM-1001/R0AC1	Transmitting Data to the Paducah Oak Ridge Environmental Information System (OREIS)	PAD-ENM-1001	PAD-ENM-1001
PRS-ENM-1002/R0AC1	Submitting, Reviewing, and Dispositioning Changes to the Environmental Databases (OREIS and PEMS)	PAD-ENM-1002	PAD-ENM-1002
PRS-ENM-1003	Developing, Implementing, and Maintaining Data Management Implementation Plans	PAD-ENM-1003	PAD-ENM-1003
PRS-ENM-2002	Sampling of Structural Elements and Miscellaneous Surfaces	PAD-ENM-2002	PAD-ENM-2002
PRS-ENM-2100/R0FC1AC1	Groundwater Level Measurement	PAD-ENM-2100	PAD-ENM-2100
PRS-ENM-2101/R2	Groundwater Sampling	PAD-ENM-2101	PAD-ENM-2101
PRS-ENM-2203/R2	Surface Water Sampling	PAD-ENM-2203	PAD-ENM-2203
PRS-ENM-2300/R0FC1	Collection of Soil Samples	PAD-ENM-2300	PAD-ENM-2300
PRS-ENM-2302/R0AC1	Collection of Sediment Samples Associated with Surface Water	PAD-ENM-2302	PAD-ENM-2302
PRS-ENM-2303/R0AC1	Borehole Logging	PAD-ENM-2303	PAD-ENM-2303
PRS-ENM-2700/R0FC1	Logbooks and Data Forms	PAD-ENM-2700	PAD-ENM-2700
PRS-ENM-2702/R0FC1	Decontamination of Sampling Equipment and Devices	PAD-ENM-2702	PAD-ENM-2702
PRS-ENM-2704/R0FC1	Trip, Equipment and Field Blank Preparation	PAD-ENM-2704	PAD-ENM-2704
PRS-ENM-2708/R1	Chain-of-Custody forms, Field Sample Logs, Sample Labels, and Custody Seals	PAD-ENM-2708	PAD-ENM-2708
PRS-ENM-5003	Quality Assured Data	PAD-ENM-5003	PAD-ENM-5003
PRS-ENM-5004	Sample Tracking, Lab Coordination & Sample Handling Guidance	PAD-ENM-5004	PAD-ENM-5004
PRS-ENM-5007	Data Management Coordination	PAD-ENM-5007	PAD-ENM-5007
PRS-ENM-5102	Radiochemical Data Verification and Validation	PAD-ENM-5102	PAD-ENM-5102
PRS-ENM-5103	Polychlorinated Dibenzodioxins/Polychlorinated Dibenzofurans Verification and Validation	PAD-ENM-5103	PAD-ENM-5103
PRS-ENM-5105	Volatile and Semivolatile Data Verification and Validation	PAD-ENM-5105	PAD-ENM-5105
PRS-ENM-5107	Inorganic Data Verification and Validation	PAD-ENM-5107	PAD-ENM-5107
PRS-ENR-0001	Northwest Groundwater System Startup and Shutdown of the Air Compressors	PAD-ENR-0001	PAD-SO-0001
PRS-ENR-0002	Sampling Activated Carbon from the Northwest Plume Groundwater System	PAD-ENR-0002	PAD-SO-0002
PRS-ENR-0003	Northwest Plume Groundwater System, Visual Inspection of the Air Stripper Trays	PAD-ENR-0003	PAD-SO-0003
PRS-ENR-0004	Northwest Plume Groundwater System Routine Maintenance for Ventilation/Exhaust Fans	PRS-ENR-0004	PAD-ENR-0004
PRS-ENR-0005	Startup and Normal Operations of the Northeast Plume Containment System	PAD-ENR-0005	PAD-SO-0005
PRS-ENR-0006	C-637-2A/C-637-2B Cooling Tower Changeover at the Northeast Plume Containment System	PAD-ENR-0006	PAD-SO-0006
PRS-ENR-0007	Backflow Preventer Testing at the Northeast Plume Containment System	PAD-ENR-0007	PAD-SO-0007
PRS-ENR-0008	Startup and Normal Operations of the C-612 Northwest Plume Groundwater System Following Long Term Shutdown	PAD-ENR-0008	PAD-SO-0008

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PRS-ENR-0009	Manual Backwash of the Sand Filter in the C-612 Northwest Plume Groundwater System	PAD-ENR-0009	PAD-SO-0009
PRS-ENR-0010	Manual Backwash of the Ion Exchange System in the C-612 Northwest Plume Groundwater System	PAD-ENR-0010	PAD-SO-0010
PRS-ENR-0011	Solids Dewatering in the C-612 Northwest Plume Groundwater System	PAD-ENR-0011	PAD-SO-0011
PRS-ENR-0012	Groundwater Acceptance at the C-612 Northwest Plume Groundwater System	PAD-ENR-0012	PAD-SO-0012
PRS-ENR-0013	Ion Exchange Resin Sluicing in the Northwest Plume Groundwater System	PAD-ENR-0013	PAD-SO-0013
PRS-ENR-0014	Normal Northwest Plume Groundwater Shutdown and Restart	PAD-ENR-0014	PAD-SO-0014
PRS-ENR-0015	Activated Carbon Change-Out at the C-612 Northwest Plume Groundwater System	PAD-ENR-0015	PAD-SO-0015
PRS-ENR-0016	Monthly, Quarterly and Annual Maintenance at the C-612 Northwest Plume Groundwater System	PAD-ENR-0016	PAD-SO-0016
PRS-ENR-0017	Northwest/Northeast Plume Daily Operational Data Collection and Maintenance	PAD-ENR-0017	PAD-SO-0017
PRS-ENR-0018	Normal (Short-term) System Shutdown for the Northeast Plume Containment System	PAD-ENR-0018	PAD-SO-0018
PRS-ENR-0019	On-line Analyzer Maintenance in the C-612 Northwest Plume Groundwater System	PAD-ENR-0019	PAD-SO-0019
PRS-ENR-0020	Direct Push Technology (DPT) Sampling	PAD-ENR-0020	PAD-ENR-0020
PRS-ENR-0021/R0AC1	Tree-Tissue (Tree Core) Sample Collection	PAD-ENR-0021	PAD-ENR-0021
PRS-ENR-0023/R0AC1	Downhole Video Camera Inspection	PAD-ENR-0023	PAD-ENR-0023
PRS-ENR-0034/R0FC1	XRF Field Lab Analysis of Soils	PAD-ENR-0034	PAD-ENR-0034
PRS-ENR-0035	Vapor Sampling	PAD-ENR-0035	PAD-ENR-0035
PRS-ERP-4001/R1AC1	Emergency Management	PAD-ERP-4001	PAD-ERM-4001
PRS-ERP-4002	Paducah Emergency Operations Center Activities	PAD-ERP-4002	PAD-ERM-4002
PRS-ERP-4003/R0AC1	Paducah Recovery From Emergencies	PAD-ERP-4003	PAD-ERM-4003
PRS-ERP-4004/R1AC1	Preparation and Maintenance of Emergency Planning Hazard Surveys, Hazards Assessment, and Emergency Action Levels	PAD-ERP-4004	PAD-ERM-4004
PRS-ESH-0010	Usage of 3M L-900 Series and PAPR Helmets	PAD-ESH-0010	PAD-IH-0010
PRS-ESH-0011	HAZWOPER Training Qualifications and Evaluation Criteria	PAD-ESH-0011	PAD-SH-0011
PRS-ESH-0013	Return to Work and Medical Care Process	PAD-ESH-0013	PAD-SH-0013
PRS-ESH-0014	PRS Worker Fatigue Policy	PAD-ESH-0014	PAD-SH-0014
PRS-ESH-0015	Safety Incentive and Spot Award Program for PRS, LLC	PRS-ESH-0015	PAD-SH-0015
PRS-ESH-1001/R2	Issuance, Use, Storage and Maintenance of 3M Model L901/L905 Respirator Hoods	PAD-ESH-1001	PAD-IH-1001
PRS-ESH-1002	Working On or Near Energized Electrical Equipment	PAD-ESH-1002	PAD-SH-1002
PRS-ESH-1006/R0AC1	Personal Protective Equipment	PAD-ESH-1006	PAD-SH-1006
PRS-ESH-1007/R2	Incident/Event Reporting	PAD-ESH-1007	PAD-SH-1007
PRS-ESH-1008	Facility Hazard Assessment	PAD-ESH-1008	PAD-IH-1008
PRS-ESH-1015	Scaffolds and Portable Ladders	PAD-ESH-1015	PAD-SH-1015
PRS-ESH-2000	General Safety Requirements	PAD-ESH-2000	PAD-SH-2000
PRS-ESH-2001	Identifying Defective Equipment	PAD-ESH-2001	PAD-SH-2001
PRS-ESH-2002/R1FC1	Lead and Inorganic Arsenic Protection	PAD-ESH-2002	PAD-IH-2002
PRS-ESH-2003/R1	Industrial Equipment Operator Qualification Program	PAD-ESH-2003	PAD-SH-2003
PRS-ESH-2004/R0FC1	Fall Prevention and Protection	PAD-ESH-2004	PAD-SH-2004
PRS-ESH-2005/R1	Battery Charging Areas	PAD-ESH-2005	PAD-SH-2005
PRS-ESH-2007/R1AC2FC1	Industrial Motorized Trucks (Forklifts)	PAD-ESH-2007	PAD-SH-2007
PRS-ESH-2008	Articulating Boom Work Platform Operation	PAD-ESH-2008	PAD-SH-2008
PRS-ESH-2010/R1FC1	Hazard Assessment	PAD-ESH-2010	PAD-SH-2010
PRS-ESH-2014	Compressed Gases	PAD-ESH-2014	PAD-SH-2014
PRS-ESH-2017/R1AC1	Emergency Showers and Eyewash Equipment	PAD-ESH-2017	PAD-SH-2017
PRS-ESH-2018/R1FC1	Stop/Suspend Work (Safety Related)	PAD-ESH-2018	PAD-SH-2018
PRS-ESH-2020/R0FC1	Hot Work	PAD-ESH-2020	PAD-SH-2020
PRS-ESH-5110	Biological Monitoring for Industrial Chemicals	PAD-ESH-5110	PAD-IH-5110
PRS-ESH-5113	Requesting and Providing IH Exposure History Records	PAD-ESH-5113	PAD-IH-5113
PRS-ESH-5121 (formerly PRS/PROG/0031)	Occupational Noise Exposure and Hearing Conservation	PAD-ESH-5121	PAD-IH-5121
PRS-ESH-5133	Ergonomics	PAD-ESH-5133	PAD-IH-5133
PRS-ESH-5134/R2	Temperature Extremes	PAD-ESH-5134	PAD-IH-5134
PRS-ESH-5135 (formerly PRS/PROG/0033)	Bloodborne Pathogens and First Aid	PRS-ESH-5135	PAD-IH-5135

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PRS-ESH-5138 (formerly PRS/PROG/0035)	Confined Space Program	PAD-ESH-5138	PAD-IH-5138
PRS-ESH-5140 (formerly PRS/PROG/0036)	Hazard Communication	PAD-ESH-5140	PAD-IH-5140
PRS-ESH-5150 (formerly PRS/PROG/0028)	Chronic Beryllium Disease Prevention	PAD-ESH-5150	PAD-IH-5150
PRS-ESH-5161/R1	Hazardous Waste Operations and Emergency Response	PAD-ESH-5161	PAD-ERM-5161
PRS-ESH-5172 (formerly PRS/PROG/0032)	Indoor Air Quality	PAD-ESH-5172	PAD-IH-5172
PRS-ESH-5181/R1	Hazardous Material Information and Inventory Process	PAD-ESH-5181	PAD-IH-5181
PRS-ESH-5201/R0TC1	Asbestos and Other Fibrous Materials	PAD-ESH-5201	PAD-IH-5201
PRS-ESH-5416	Industrial Ventilation - Lab Hoods	PAD-ESH-5416	PAD-IH-5416
PRS-ESH-5558	Industrial Hygiene Measuring and Testing Equipment Calibration Program	PAD-ESH-5558	PAD-IH-5558
PRS-ESH-5560	Workplace Industrial Hygiene Sampling	PRS-ESH-5560	PAD-IH-5560
PRS-ESH-5615	Safety and Health, Roles and Responsibilities	PAD-ESH-5615	PAD-SH-5615
PRS-ESH-8003/R0AC2	Occupational Medicine	PAD-ESH-8003	PAD-SH-8003
PRS-FCD-0040	Winterization Procedure	PAD-FCD-0040	PAD-DD-0040
PRS-FCD-0061	Waste Management Plan for the Dismantling and Demolition of the C-340 Metals Reducation Complex at the PGDP	PRS-FCD-0061	PAD-DD-0061
PRS-FCD-0062	Sampling and analysis Plan for the C-340 Metals Reduction Complex PGDP	PRS-FCD-0062	PAD-DD-0062
PRS-FCD-0738/R0FC1	Waste Management Plan for the C-746-A West End Smelter at PGDP	PRS-FCD-0738/R0FC1	PAD-DD-0738
PRS-FCD-0745	Waste Management Plan for the C-405 Incinerator at the PGDP	PRS-FCD-0745	PAD-DD-0745
PRS-FCD-1010	Equipment Decontamination and Fixative Application	PAD-FCD-1010	PAD-DD-1010
PRS-FCD-1014	Overhead Crane Operation, Inspection, Testing, and Maintenance	PAD-FCD-1014	PAD-DD-1014
PRS-FCD-1015	Facilities Disposition Inspections	PAD-FCD-1015	PAD-DD-1015
PRS-FCD-2701/R0FC1	Large Equipment Decontamination	PAD-FCD-2701	PAD-DD-2701
PRS-FCD-2702	Waste Management Plan for the Demolition of C-217 (Guard House at Post 43) and C-219 (Guard Shack/Trailer) at the PGDP	PRS-FCD-2702	PAD-DD-2702
PRS-FCD-6001/R4AC1	Contingency Plan for CERCLA and RCRA Storage Areas managed by the Facilities Disposition Program	PRS-FCD-6001/R4AC1	PAD-DD-6001
PRS-FCD-6006/R1	Administration of the Paducah DOE C-410 Complex	PAD-FCD-6006	PAD-DD-6006
PRS-FCD-6008/R3	C-410 Facility PCAAS Setup, Operation and TSR Surveillance Requirements	PAD-FCD-6008	PAD-DD-6008
PRS-FCD-6009/R2	C-410 Facility PCAAS Initial Entry/Four-Hour Visual Check Surveillance Requirement	PAD-FCD-6009	PAD-DD-6009
PRS-FCD-6010/R0AC1	Combustible Control Requirements for the C-410 Complex at Paducah	PAD-FCD-6010	PAD-DD-6010
PRS-FCD-6011/R1	C-410 Facility PCAAS Horn/UPS Backup Battery Annual Surveillance Requirement	PAD-FCD-6011	PAD-DD-6011
PRS-HMR-1000/R0AC1	Employee Concerns Program	PAD-HMR-1000	PAD-HR-1000
PRS-HMR-1001/R4	Drug and Alcohol Control	PAD-HMR-1001	PAD-HR-1001
PRS-HMR-1014	Labor Standards Determination	PAD-HMR-1014	PAD-HR-1014
PRS-HMR-1015	Disability Benefits	PAD-HMR-1015	PAD-HR-1015
PRS-HMR-1016	Family and Medical Leave Act Benefits	PAD-HMR-1016	PAD-HR-1016
PRS-HMR-1017	Leave of Absence	PAD-HMR-1017	PAD-HR-1017
PRS-HMR-1018	Employment of Salaried and Hourly Employees	PAD-HMR-1018	PAD-HR-1018
PRS-HMR-1021	Employee Data Changes and Updates	PAD-HMR-1021	PAD-HR-1021
PRS-HMR-1022	Progressive Discipline	PAD-HMR-1022	PAD-HR-1022
PRS-HMR-1023	Termination of Employment	PAD-HMR-1023	PAD-HR-1023
PRS-NFS-0001/R1	Management of Safety Basis Documents	PAD-NFS-0001	PAD-NS-0001
PRS-NFS-0006	Software QA Plan for SCALE Version 5.1	PRS-NFS-0006	PAD-NS-0006
PRS-NFS-1017	Implementation Validation Review Process	PAD-NFS-1017	PAD-NS-1017
PRS-PRF-0001/R0AC1	Property Program Procedure	PAD-PRF-0001	PAD-PRP-0001
PRS-PRF-0002/R1	Use of Government Vehicles	PAD-PRF-0002	PAD-PRP-0002
PRS-PRF-0003	Fleet Management Operations	PAD-PRF-0003	PAD-PRP-0003
PRS-PRF-0004/R0FC1	Construction Equipment Inspection and Maintenance	PAD-PRF-0004	PAD-PRP-0004
PRS-PRI-1003	Definition and Organization of Work Scope	PAD-PRI-1003	PAD-PC-1003
PRS-PRI-1006	Scheduling	PAD-PRI-1006	PAD-PC-1006

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PRS-PRI-1007	Performance Measurement, Variance Analysis and Reporting	PAD-PRI-1007	PAD-PC-1007
PRS-PRI-1008	Trends	PAD-PRI-1008	PAD-PC-1008
PRS-PRI-1009	Estimating Paducah	PAD-PRI-1009	PAD-PC-1009
PRS-PRI-1010/R1	Charge Code Process	PAD-PRI-1010	PAD-PC-1010
PRS-PRI-1401/R0FC1	Baseline Management and Change Control Paducah	PAD-PRI-1401	PAD-PC-1401
PRS-QAP-0003/R1	Performance Analysis and Trending	PAD-QAP-0003	PAD-QA-0003
PRS-QAP-0005	QA Requirements for Inspection and Test Control	PAD-QAP-0005	PAD-QA-0005
PRS-QAP-0006	QA Requirements Receipt Inspection and Handling and Storage of Material Items	PAD-QAP-0006	PAD-QA-0006
PRS-QAP-1009	Identification, Control, and Disposition of Suspect/Counterfeit Items	PAD-QAP-1009	PAD-QA-1009
PRS-QAP-1020/R0AC1	Control and Calibration of Measuring and Test Equipment	PAD-QAP-1020	PAD-QA-1020
PRS-QAP-1033/R2	Management By Walking Around (MBWA) Program	PAD-QAP-1033	PAD-QA-1033
PRS-QAP-1208/R1	Supplier Selection and Evaluation	PAD-QAP-1208	PAD-QA-1208
PRS-QAP-1210/R2FC1	Issues Management Program	PAD-QAP-1210	PAD-QA-1210
PRS-QAP-1220	Occurrence Notification and Reporting	PAD-QAP-1220	PAD-QA-1220
PRS-QAP-1230/R0AC2	Causal Analysis	PAD-QAP-1230	PAD-QA-1230
PRS-QAP-1240/R1AC1	Operating Experience/Lessons Learned Program	PAD-QAP-1240	PAD-QA-1240
PRS-QAP-1420/R2FC1AC2	Conduct of Assessments	PAD-QAP-1420	PAD-QA-1420
PRS-QAP-1440/R1	Control of Nonconforming Items and Services	PAD-QAP-1440	PAD-QA-1440
PRS-QAP-1460/R1	Event Investigations and Critiques	PAD-QAP-1460	PAD-QA-1460
PRS-QAP-1502/R0AC1	Qualification of PRS Independent Assessment Personnel	PAD-QAP-1502	PAD-QA-1502
PRS-QAP-1510	Readiness Reviews for Hazard Category 2 and 3 Nuclear Facilities/Activities	PAD-QAP-1510	PAD-QA-1510
PRS-QAP-1520/R0AC1	Readiness Reviews for Radiological, Non-Nuclear, and Other Industrial Facilities/Activities	PAD-QAP-1520	PAD-QA-1520
PRS-QAP-1610/R0AC1	Noncompliance Determination and Reporting	PAD-QAP-1610	PAD-QA-1610
PRS-QAP-1650/R0AC1	Graded Approach	PAD-QAP-1650	PAD-QA-1650
PRS-RAD-0102	PRS Radiological Control Organization Software QA Plan	PRS-RAD-0102	PAD-RAD-0102
PRS-RAD-0103	The Internal Dosimetry Program for the PRS, LLC	PRS-RAD-0103	PAD-RAD-0103
PRS-RAD-0201/R1	Internal Dosimetry Technical Basis Document for the PRS	PAD-RAD-0201	PAD-RAD-0201
PRS-RAD-0204	TB for External Dosimetry	PRS-RAD-0204	PAD-RAD-0204
PRS-RAD-0301	Radiological Characterization Data	PAD-RAD-0301	PAD-RAD-0301
PRS-RAD-0302/R1AC1	Paducah Environmental Remediation Project Annual ALARA Performance Goals for Exposure to Ionizing Radiation	PAD-RAD-0302	PAD-RAD-0302
PRS-RAD-0303	Unrestricted Radiological Release of Excess Property, Equipment, and Materials from PRS, LLC, Projects at the PGDP	PAD-RAD-0303	PAD-RAD-0303
PRS-RAD-0304	Implementation of the Radiation Protection Program	PAD-RAD-0304	PAD-RAD-0304
PRS-RAD-0305/R0FC1	Company Issued Clothing	PRS-RAD-0305/R0FC1	PAD-RAD-0305
PRS-RAD-0501	Posting and Labeling Policy for the Paducah Environmental Remediation Project	PRS-RAD-0501	PAD-RAD-0501
PRS-RAD-1101/R1	Radiation Exposure Limits	PAD-RAD-1101	PAD-RAD-1101
PRS-RAD-1102/R1	Design and Control	PAD-RAD-1102	PAD-RAD-1102
PRS-RAD-1103	Personnel and Personal Effects Decontamination	PAD-RAD-1103	PAD-RAD-1103
PRS-RAD-1104/R2	Radiological Area Entry Control	PAD-RAD-1104	PAD-RAD-1104
PRS-RAD-1105/R1	Receipt, Transport, and Movement of Radioactive Materials	PAD-RAD-1105	PAD-RAD-1105
PRS-RAD-1106/R1	Selection and Use of Anticontamination Clothing	PAD-RAD-1106	PAD-RAD-1106
PRS-RAD-1107/R1	Workplace Air Monitoring for Radioactivity	PAD-RAD-1107	PAD-RAD-1107
PRS-RAD-1108/R1	Posting and Labeling	PAD-RAD-1108	PAD-RAD-1108
PRS-RAD-1109/R1	Radioactive Contamination Control and Monitoring	PAD-RAD-1109	PAD-RAD-1109
PRS-RAD-1110/R1	Radiation Surveys	PAD-RAD-1110	PAD-RAD-1110
PRS-RAD-1111/R1	Workplace Monitoring	PAD-RAD-1111	PAD-RAD-1111
PRS-RAD-1112	Air Sample Collection, Analysis, and Documentation	PAD-RAD-1112	PAD-RAD-1112
PRS-RAD-1113	Handling of Samples Potentially Contaminated with Hazardous Material	PAD-RAD-1113	PAD-RAD-1113
PRS-RAD-1114/R1	ALARA Program	PAD-RAD-1114	PAD-RAD-1114
PRS-RAD-1115/R2	ALARA Reviews	PAD-RAD-1115	PAD-RAD-1115
PRS-RAD-1116 (Formerly RAD-1503)	Vehicle Radiological Control	PAD-RAD-1116	PAD-RAD-1116
PRS-RAD-1117/R0AC1	Accidents and Emergencies	PAD-RAD-1117	PAD-RAD-1117

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PRS-RAD-1118/AC1	Use and Maintenance of Non-Fissile HEPA Filter-Equipped Vacuum Cleaners	PAD-RAD-1118	PAD-RAD-1118
PRS-RAD-1119/R2	Operation and Maintenance of Negative Air Machines	PAD-RAD-1119	PAD-RAD-1119
PRS-RAD-1201/R1	Internal Dosimetry	PAD-RAD-1201	PAD-RAD-1201
PRS-RAD-1202/R1	External Dosimetry	PAD-RAD-1202	PAD-RAD-1202
PRS-RAD-1203/R1	Embryo/Fetus Protection	PAD-RAD-1203	PAD-RAD-1203
PRS-RAD-1204/R2	Reports to Individuals	PAD-RAD-1204	PAD-RAD-1204
PRS-RAD-1205/R1	Skin Dose Assessment	PAD-RAD-1205	PAD-RAD-1205
PRS-RAD-1206/R1	Planned Special Exposures	PAD-RAD-1206	PAD-RAD-1206
PRS-RAD-1207	Privacy Act Requests for Radiation Exposure Records	PAD-RAD-1207	PAD-RAD-1207
PRS-RAD-1208	Work Notification of Bioassay Result	PAD-RAD-1208	PAD-RAD-1208
PRS-RAD-1209	In Processing Individuals to be Monitored by Dosimetry	PAD-RAD-1209	PAD-RAD-1209
PRS-RAD-1210/R1	Scheduling In-Vivo Appointments and Notifying Participants	PAD-RAD-1210	PAD-RAD-1210
PRS-RAD-1211/R1	Scheduling Routine Bioassay Appointments and Printing Bioassay Labels	PAD-RAD-1211	PAD-RAD-1211
PRS-RAD-1213	Bioassay Sample Submittal and Check-In	PAD-RAD-1213	PAD-RAD-1213
PRS-RAD-1214	Bioassay Sample Chain-of-Custody	PAD-RAD-1214	PAD-RAD-1214
PRS-RAD-1215	Preparation of Samples for Transfer to the Radiobioassay Laboratory	PAD-RAD-1215	PAD-RAD-1215
PRS-RAD-1216	Management of Non-Routine Bioassay Samples	PAD-RAD-1216	PAD-RAD-1216
PRS-RAD-1217	Management of Priority Read Thermoluminescent Dosimeters	PAD-RAD-1217	PAD-RAD-1217
PRS-RAD-1218	Management of Personnel Who Receive Medical Isotopes	PAD-RAD-1218	PAD-RAD-1218
PRS-RAD-1219	Dosimetry Notification Supporting Administrative Control Limits, ALARA Goals, and Personal Dosimetry Records	PAD-RAD-1219	PAD-RAD-1219
PRS-RAD-1222	Preparation and Distribution of the Dosimetry Delinquency and Restriction Reports	PAD-RAD-1222	PAD-RAD-1222
PRS-RAD-1223	Management of the Bioassay Performance Evaluation Samples	PAD-RAD-1223	PAD-RAD-1223
PRS-RAD-1224	Review of Dosimetry Quality Control and Performance Evaluation Reports	PAD-RAD-1224	PAD-RAD-1224
PRS-RAD-1226	Requesting Occupational Radiation Exposure Records from Previous Employers	PAD-RAD-1226	PAD-RAD-1226
PRS-RAD-1227	Personnel Transfers and Terminations	PAD-RAD-1227	PAD-RAD-1227
PRS-RAD-1228	Preparation and Transmittal of Occupational Radiation Exposure Records to Employers and Individuals	PAD-RAD-1228	PAD-RAD-1228
PRS-RAD-1229	Review of In-Vitro Results	PAD-RAD-1229	PAD-RAD-1229
PRS-RAD-1230	Review of In-Vivo Data	PAD-RAD-1230	PAD-RAD-1230
PRS-RAD-1231	Transmittal of Bioassay Results in Excess of Investigation or Decision Levels	PAD-RAD-1231	PAD-RAD-1231
PRS-RAD-1232	Investigation of Potential Missed Monitoring Periods	PAD-RAD-1232	PAD-RAD-1232
PRS-RAD-1301	Radiation Generating Devices	PAD-RAD-1301	PAD-RAD-1301
PRS-RAD-1302/R1	Radioactive Source Control	PAD-RAD-1302	PAD-RAD-1302
PRS-RAD-1305	Operation of the GARDIAN Mobile Assay System	PAD-RAD-1305	PAD-RAD-1305
PRS-RAD-1306	Calibration of the GARDIAN Mobile Assay System	PAD-RAD-1306	PAD-RAD-1306
PRS-RAD-1307/R1	Operation of the Continuous Air Monitors (CAMs)	PAD-RAD-1307	PAD-RAD-1307
PRS-RAD-1308	Calibration and Setup of the Canberra iCAM Continuous Air Monitor	PAD-RAD-1308	PAD-RAD-1308
PRS-RAD-1309	Setup for Operability Tests of Portable Field Instruments	PAD-RAD-1309	PAD-RAD-1309
PRS-RAD-1310	Calibration of Genie-2000-Based HPGE Gamma Spectroscopy System	PAD-RAD-1310	PAD-RAD-1310
PRS-RAD-1311	Operation of GENIE-2000-Based HPGe Gamma Spectroscopy System	PAD-RAD-1311	PAD-RAD-1311
PRS-RAD-1312	Calibration of HVP-3500/3800AFC Air Sampler	PAD-RAD-1312	PAD-RAD-1312
PRS-RAD-1313	Operation of Protean IPC-9025	PAD-RAD-1313	PAD-RAD-1313
PRS-RAD-1314	In Place HEPA Filter and Carbon Absorber Leak Test Procedure	PAD-RAD-1314	PAD-RAD-1314
PRS-RAD-1317	Calibration and Performance Response Checks of the APTEC AHF-2000 Hand and Foot Monitor	PAD-RAD-1317	PAD-RAD-1317
PRS-RAD-1318	Calibration and Performance Response Checks Canberra Argos-4AB	PAD-RAD-1318	PAD-RAD-1318

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PRS-RAD-1319	Calibration of Tennelec XLB Series 2 & 5, Low Background Counting System	PAD-RAD-1319	PAD-RAD-1319
PRS-RAD-1320	Operation of Tennelec XLB Series 2 & 5, Low Background Counter	PAD-RAD-1320	PAD-RAD-1320
PRS-RAD-1321	Calibration and Daily Checks of the Protean IPC-9025	PAD-RAD-1321	PAD-RAD-1321
PRS-RAD-1322	Calibration of the Berthold LB770 Low Background Counting System	PAD-RAD-1322	PAD-RAD-1322
PRS-RAD-1323	Operation of the Berthold LB770 Low Background Counter	PAD-RAD-1323	PAD-RAD-1323
PRS-RAD-1324	Canberra iSolo Alpha/Beta Counter Initial Setup, Calibration & Operation	PAD-RAD-1324	PAD-RAD-1324
PRS-RAD-1325	Radiological Instrument G-M Detector and Mylar Window Probe Replacement	PAD-RAD-1325	PAD-RAD-1325
PRS-RAD-1326	Control of Government Owned Radiological Instrumentation	PAD-RAD-1326	PAD-RAD-1326
PRS-RAD-1327	Calibration of High Volume Air Samplers	PAD-RAD-1327	PAD-RAD-1327
PRS-RAD-1328	Operation of the Ludlum 3500-1000 Radiation Detection System	PAD-RAD-1328	PAD-RAD-1328
PRS-RAD-1329	Calibration of Lapel Air Samplers	PAD-RAD-1329	PAD-RAD-1329
PRS-RAD-1331	Calibration of Low Volume Air Samplers	PAD-RAD-1331	PAD-RAD-1331
PRS-RAD-1333	Packard Tri-Carb Liquid Scintillation Counter Operations	PAD-RAD-1333	PAD-RAD-1333
PRS-RAD-1335	Performance Checking the Bicron LFM-2 Radioactive Material Detection System	PAD-RAD-1335	PAD-RAD-1335
PRS-RAD-1336	Radiological Field Instrumentation Operability Tests	PAD-RAD-1336	PAD-RAD-1336
PRS-RAD-1337	Calibration and Performance Response Checks of the Sirius - 4AB Hand and Foot Monitors	PRS-RAD-1337	PAD-RAD-1337
PRS-RAD-1338	Calibration and Performance Response Checks Canberra Argos-5AB	PRS-RAD-1338	PAD-RAD-1338
PRS-RAD-1401/R1	Radiation Protection Program Records	PAD-RAD-1401	PAD-RAD-1401
PRS-RAD-1403/R1	RADCON Records Management	PAD-RAD-1403	PAD-RAD-1403
PRS-RAD-1502/R1	RADCON Internal Assessment Program	PAD-RAD-1502	PAD-RAD-1502
PRS-RAD-1504	RADCON Project Walk-downs	PAD-RAD-1504	PAD-RAD-1504
PRS-RAD-1601/R1AC1	Radiation Safety Training	PAD-RAD-1601	PAD-RAD-1601
PRS-RAD-1602/R1FC1	Radiological Control Technician Training	PAD-RAD-1602	PAD-RAD-1602
PRS-RAD-1603/R0	Radiological Site Access Requirements and Site Access Cards	PAD-RAD-1603	PAD-RAD-1603
PRS-REG-0002/R0AC1	SWMU/AOC Reporting Under the RCRA Hazardous Waste Facility Permit Conditions	PAD-REG-0002	PAD-REG-0002
PRS-REG-0003/R1	Performing Environmental Compliance Assessments and Identification and Reporting of Environmental Issues	PAD-REG-0003	PAD-REG-0003
PRS-REG-0004	Approval to Discharge Air or Water	PAD-REG-0004	PAD-REG-0004
PRS-SMG-0001	Golf/Utility Cart Inspection and Maintenance Program	PAD-SMG-0001	PAD-SM-0001
PRS-SMG-0002/R0FC1	Minor Electrical Maintenance	PAD-SMG-0002	PAD-SM-0002
PRS-SMG-0004	Mobile Crane Inspection and Maintenance	PAD-SMG-0004	PAD-SM-0004
PRS-TRN-0702/R1	Conduct of Training	PAD-TRN-0702	PAD-TR-0702
PRS-TRN-0710/R2	Assignment of Training	PAD-TRN-0710	PAD-TR-0710
PRS-TRN-0750/R2	Required Reading	PAD-TRN-0750	PAD-TR-0750
PRS-TRN-1088/R3	Training and Qualification Program for CAT 2 and 3 Nuclear Facilities and Radiological Facilities	PAD-TRN-1088	PAD-TR-1088
PRS-WCE-0001/R1	Field Engineering Inspections and Surveys	PRS-WCE-0001/R1	PAD-ENG-0001
PRS-WCE-0004	Nuclear Criticality Safety	PRS-WCE-0004	PAD-NS-0004
PRS-WCE-0005	Nuclear Criticality Safety Program	PRS-WCE-0005	PAD-NS-0005
PRS-WCE-0011/R0AC1	Configuration Management	PRS-WCE-0011/R0AC1	PAD-ENG-0011
PRS-WCE-0012/R2	Hoisting and Rigging Operations	PAD-WCE-0012	PAD-ENG-0012
PRS-WCE-0013/R0AC1	Engineering Design Control	PRS-WCE-0013/R0AC1	PAD-ENG-0013
PRS-WCE-0014/R1	Project Specifications	PAD-WCE-0014	PAD-ENG-0014
PRS-WCE-0016/R1	Facility Management and Operations	PAD-WCE-0016	PAD-FM-0016
PRS-WCE-0018/R7	Work Management Program for the Paducah Environmental Remediation Project	PAD-WCE-0018	PAD-WC-0018
PRS-WCE-0019/R2	Work Authorization	PAD-WCE-0019	PAD-WC-0019
PRS-WCE-0020/R6	Work Planning	PAD-WCE-0020	PAD-WC-0020
PRS-WCE-0021/R4AC1	Work Execution	PAD-WCE-0021	PAD-WC-0021
PRS-WCE-0022/R3AC1	Work Closeout	PAD-WCE-0022	PAD-WC-0022
PRS-WCE-0026/R2FC1	Excavation/Penetration Permit	PAD-WCE-0026	PAD-ENG-0026
PRS-WCE-0027	Field Change Request (FCR), Field Change Notice (FCN), and Design Change Notice (DCN) Process	PAD-WCE-0027	PAD-ENG-0027

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PRS-WCE-0028/R3	Standards and Requirements Management	PAD-WCE-0028	PAD-ENG-0028
PRS-WCE-0031	Independent Verification	PAD-WCE-0031	PAD-ENG-0031
PRS-WCE-0039/R1	Independent Review Committee	PAD-WCE-0039	PAD-NS-0039
PRS-WCE-0041	Remediation Project Value Engineering	PAD-WCE-0041	PAD-ENG-0041
PRS-WCE-0042/R1	Pressure Safety	PAD-WCE-0042	PAD-ENG-0042
PRS-WCE-0044/R1	Adherence to Performance Documents	PAD-WCE-0044	PAD-PD-0044
PRS-WCE-0046	PRS Welding Program General Requirements	PAD-WCE-0046	PAD-ENG-0046
PRS-WCE-0047	PRS Welder, Welder Operator and Welding Inspector Qualification	PAD-WCE-0047	PAD-ENG-0047
PRS-WCE-0048	Weld Filler Material Control	PAD-WCE-0048	PAD-ENG-0048
PRS-WCE-0049	Inspection of Welds	PAD-WCE-0049	PAD-ENG-0049
PRS-WCE-0050	Fire Protection Engineering Assessments Procedure	PAD-WCE-0050	PAD-ENG-0050
PRS-WCE-0051	Controlling Combustibles and Ignition Sources	PAD-WCE-0051	PAD-ENG-0051
PRS-WCE-0052	Fire Hazard Analysis	PAD-WCE-0052	PAD-ENG-0052
PRS-WCE-0053	Fire Extinguisher Inspection & Maintenance	PAD-WCE-0053	PAD-ENG-0053
PRS-WCE-0055	Inspection of Flammable Liquid Storage Cabinets	PAD-WCE-0055	PAD-ENG-0054
PRS-WCE-1001/R1	Unreviewed Safety Question Determinations for Nuclear Category 2 & 3 Facilities	PAD-WCE-1001	PAD-NS-1001
PRS-WCE-1002/R1	Safety Documentation for Hazard Category 2 & 3 Nuclear Facilities	PAD-WCE-1002	PAD-NS-1002
PRS-WCE-1003/R1AC1FC1	Nuclear Criticality Safety Program Implementation	PAD-WCE-1003	PAD-NS-1003
PRS-WCE-1005/R2	Nuclear Criticality Safety Evaluations and Calculations	PAD-WCE-1005	PAD-NS-1005
PRS-WCE-1008/R1	Unreviewed Change Determinatinos for Radiological and Non-Nuclear Facilities	PAD-WCE-1008	PAD-NS-1008
PRS-WCE-1009	Safety Documentation for Radiological and Non-Nuclear Facilities	PAD-WCE-1009	PAD-NS-1009
PRS-WCE-1013	Engineering Evaluations and Verifications	PRS-WCE-1013	PAD-ENG-1013
PRS-WCE-1015	Generation, Review, Approval and Control of Authorization Agreements	PRS-WCE-1015	PAD-NS-1015
PRS-WCE-1026/R2	Project Calculations	PRS-WCE-1026/R2	PAD-ENG-1026
PRS-WCE-1027/R1	Project Drawings	PAD-WCE-1027	PAD-ENG-1027
PRS-WSD-0006/R5	Facility Safety Basis Inventory Control Plan for Paducah Waste Storage Facilities	PRS-WSD-0006	PAD-WD-0006
PRS-WSD-0011	Waste Acceptance Criteria for the Treatment, Storage, and Disposal Facilities at the Paducah DOE Site	PRS-WSD-0011	PAD-WD-0011
PRS-WSD-0015/R3FC2	Management of Fissile Waste Materials	PAD-WSD-0015	PAD-WD-0015
PRS-WSD-0016/R3FC2	Waste Handling and Storage in DOE Waste Storage Facilities	PAD-WSD-0016	PAD-WD-0016
PRS-WSD-0017/R2AC1	Standard Operations for the C-746-S, -T, and -U Landfills.	PAD-WSD-0017	PAD-WD-0017
PRS-WSD-0018/R1	Operation of C-746-U Contained Landfill Leachate Collection, Storage and Treatment System	PAD-WSD-0018	PAD-WD-0018
PRS-WSD-0019/R1	On-Site Transfer and Movement of Waste Containers and Other Support Equipment	PAD-WSD-0019	PAD-WD-0019
PRS-WSD-0022/R3	Waste Water Accumulation, Storage, Treatment, and Disposal	PAD-WSD-0022	PAD-WD-0022
PRS-WSD-0023/R3FC2	Inspection of DOE Waste Storage Facilities and Tanks	PAD-WSD-0023	PAD-WD-0023
PRS-WSD-0025/R0AC1	PRS Transportation Security Plan for the Transport of Hazardous Materials in Commerce	PRS-WSD-0025/R0AC1	PAD-WD-0025
PRS-WSD-0030	PRS Commercial Motor Vehicle	PAD-WSD-0030	PAD-WD-0030
PRS-WSD-0034/R1	PCB Spill Management	PAD-WSD-0034	PAD-WD-0034
PRS-WSD-0035/R1	TSCA FFCA Activities	PAD-WSD-0035	PAD-WD-0035
PRS-WSD-0036/R1	Use of Barcode Readers/Scanners	PAD-WSD-0036	PAD-WD-0036
PRS-WSD-0040/R2	Management of C-746-S Contained Landfill Leachate Collection System	PAD-WSD-0040	PAD-WD-0040
PRS-WSD-0216	Maintenance of Paducah's Implementing Procedures for Certification of Waste to Nevada Test	PRS-WSD-0216	PAD-WD-0216
PRS-WSD-0392	Site for Paducah Remediation Services, LLC	PAD-WSD-0392	PAD-WD-0392
PRS-WSD-0437/R6	Waste Characterization and Profiling	PAD-WSD-0437	PAD-WD-0437
PRS-WSD-0541	Treatment and Discharge of Leachate Via the C-746-U Leachate Treatment System	PAD-WSD-0541	PAD-WD-0541
PRS-WSD-0589	Characterization For Movement, Storage, And Disposition Of Potentially Fissile Materials	PRS-WSD-0589	PAD-WD-0589
PRS-WSD-0661/R2AC1	Transportation Safety Document for On-Site Transport within the PGDP	PRS-WSD-0661	PAD-WD-0661
PRS-WSD-1017/R5	Safe Handling and Opening of Sealed Containers	PAD-WSD-1017	PAD-WD-1017

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PRS-WSD-3002/R2	Administration of Paducah DOE Material Storage Areas	PAD-WSD-3002	PAD-WD-3002
PRS-WSD-3010/R2	Waste Generator Responsibilities for Temporary On-Site Storage of Regulated Waste Materials at Paducah	PAD-WSD-3010	PAD-WD-3010
PRS-WSD-3011/R2FC1	Waste Certification	PAD-WSD-3011	PAD-WD-3011
PRS-WSD-3012/R5	Procurement, Inspection and Management of Items Critical for Paducah Off-Site Waste Shipments	PAD-WSD-3012	PAD-WD-3012
PRS-WSD-3014/R1AC1	Procurement, Inspection and Management of Used/Recyclable Waste Containers	PAD-WSD-3014	PAD-WD-3014
PRS-WSD-3015/R7	Waste Packaging	PAD-WSD-3015	PAD-WD-3015
PRS-WSD-3022/R0AC1	Access Control Requirements for the Paducah C-746-Q Hazardous and Low-Level Waste Storage Facility	PAD-WSD-3022	PAD-WD-3022
PRS-WSD-3023/R0AC1FC1	Control of Combustibles and Ignition Sources at the Paducah C-746-Q Hazardous and Low-Level Waste Storage Facility	PAD-WSD-3023	PAD-WD-3023
PRS-WSD-3025/R1AC1	Preparation and Processing of Paducah Landfill Packages	PAD-WSD-3025	PAD-WD-3025
PRS-WSD-3028/R5FC1	Off-Site Shipping	PAD-WSD-3028	PAD-WD-3028
PRS-WSD-3030	PRS Commercial Motor Carrier	PAD-WSD-3030	PAD-WD-3030
PRS-WSD-9503/R1	Off-Site Shipments by Air Transport	PAD-WSD-9503	PAD-WD-9503
PSC-PNDA-PRS-001/R2	Operation and Maintenance of the Portable Gamma-Ray Spectroscopy System	PSC-PDNA-PAD-001	
PSC-PNDA-PRS-003/R1	Gamma-Ray Scanning	PSC-PDNA-PAD-003	
VJT-PRC-0249	Fast-Scan Procedure for RTR 7	VJT-PRC-0249	
VJT-PRC-0258/R1	VJT Standard Real-Time Radiography (RTR) Inspection Procedure	VJT-PRC-0258/R1	
VJT-PRC-0259	VJT Operations Procedure for RTR 7	VJT-PRC-0259	
	Waste Management Plan For the Paducah Environmental Remediation Project	NO BLUESHEET, USE LATA DOCUMENT	PAD-PLA-ENV-001/R1
	Energy Management Plan For the Paducah Remediation Services Project	NO BLUESHEET, USE LATA DOCUMENT	PAD-PLA-HS-004
	Nuclear Materials Control and Accountability Plan Paducah Remediation Services Project	NO BLUESHEET, USE LATA DOCUMENT	PAD-PLA-NS-002
	Property Management Plan Paducah Remediation Services Project	NO BLUESHEET, USE LATA DOCUMENT	PAD-PLA-PM-005/R0-A
	Cyber Security Program Memorandum of Agreement Supporting the Plan Paducah Remediation Project	NO BLUESHEET, USE LATA DOCUMENT	PAD-PLA-PM-007/R0-A
	LATA Kentucky Environmental Policy Statement	NO BLUESHEET, USE LATA DOCUMENT	PAD-POL-0001
	LATA Kentucky Environmental, Safety & Health Policy Statement	NO BLUESHEET, USE LATA DOCUMENT	PAD-POL-0002
	LATA Kentucky Corporate Giving Policy Statement	NO BLUESHEET, USE LATA DOCUMENT	PAD-POL-0003
	LATA Kentucky Harassment (Including Sexual Harassment) Policy Statement	NO BLUESHEET, USE LATA DOCUMENT	PAD-POL-0004
	LATA Kentucky Equal Employment Opportunity for Qualified Individuals with Disabilities and Qualified Covered Veterans Policy Statement	NO BLUESHEET, USE LATA DOCUMENT	PAD-POL-0005
	LATA Kentucky Drug-Free Workplace Policy Statement	NO BLUESHEET, USE LATA DOCUMENT	PAD-POL-0006
	LATA Kentucky Employment Policy Statement	NO BLUESHEET, USE LATA DOCUMENT	PAD-POL-0007
	LATA Kentucky Quality Policy Statement	NO BLUESHEET, USE LATA DOCUMENT	PAD-POL-0008
	LATA Kentucky Business Ethics Policy Statement	NO BLUESHEET, USE LATA DOCUMENT	PAD-POL-0009
	LATA Kentucky Procurement Ethics Policy Statement	NO BLUESHEET, USE LATA DOCUMENT	PAD-POL-0010
	Radioactive Waste Management Basis for the Radioactive Waste Management Facilities Paducah Remediation Services Project	NO BLUESHEET, USE LATA DOCUMENT	PAD-PRO-NS-002

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