

VARIANCE / FIELD CHANGE NOTICE (FCN)

V 00-014

3112

WBS NO.: PROJECT/DOCUMENT

98SC000001 WPRAP Sampling and Analysis Plan for Environmental Media, Rev 0

Page 1 of 1

PROJECT TITLE: Waste Pits Remedial Action Project

Date: 4/18/00

VARIANCE / FIELD CHANGE NOTICE (Include justification):

Change: (Table 2.1)

- Delete "-by XRF or alternatively can be analyzed by ICP" from first row, Analytical Parameter column.

Justification: (Table 2.1)

Method information is extraneous. Methods aren't discussed anywhere else in table.

REQUESTED BY: Doug Taylor, IT Corp

DATE: 4/18/00

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✓	<small>IT QA Manager</small> <i>[Signature]</i>	5-2-00	✓	<small>FDF WPRAP Environmental Compliance</small> <i>[Signature]</i>	5-10-00
✓	<small>FDF WPRAP Sampling/ Analysis Coordinator</small> <i>[Signature]</i>	5-10-00			
✓	<small>FDF WPRAP QA Manager</small> <i>[Signature]</i>	5-10-00			
VARIANCE/FCN APPROVED [] YES [] NO			REVISION REQUIRED: [] YES [] NO		

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Table 2.1 Wastewater, Excavation Water, and Contact Stormwater Sampling Parameters

Before variance 100-014.

Location	Matrix	Type Sample	Analytical Parameter	Purpose of Samples	Analytical Support Level
WTS Process Control Sampling	water	grab	Total Uranium pH Turbidity TSS Nickel, Chromium Copper <i>by XRF</i>	Process Control	B
Clearwell	water	grab	Arsenic, Cadmium, Chromium, Copper, Cyanide, Nickel, Silver, Ra226, Th230, Th232, Total Uranium, Chloride, Nitrates, 1,1,1-Trichloroethane, Tetrachloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, Chloroethane, pH, TSS, Iron, TOC	Characterize for Discharge to BSL	B
WTS effluent	water	composite	Arsenic, Cadmium, Chromium, Copper, Cyanide, Nickel, Silver, Ra226, Th230, Th232, Total Uranium, Chloride, Nitrates, 1,1,1-Trichloroethane, Tetrachloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, Chloroethane, pH, TSS, Iron, TOC	Discharge Monitoring to BSL	B

Table 2.1 Wastewater, Excavation Water, and Contact Stormwater Sampling Parameters

After Variance V00-014.

Location	Matrix	Type Sample	Analytical Parameter	Purpose of Samples	ASL
WTS Process Control Sampling	water	grab	Total Uranium pH Turbidity TSS Nickel, Chromium, Copper	Process Control	B
Clearwell	water	grab	Arsenic, Cadmium, Chromium, Copper, Cyanide, Nickel, Silver, Ra226, Th230, Th232, Total Uranium, Chloride, Nitrates, 1,1,1-Trichloroethane, Tetrachloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, Chloroethane, pH, TSS, Iron, TOC	Characterize for Discharge to BSL	B
WTS effluent	water	composite	Arsenic, Cadmium, Chromium, Copper, Cyanide, Nickel, Silver, Ra226, Th230, Th232, Total Uranium, Chloride, Nitrates, 1,1,1-Trichloroethane, Tetrachloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, Chloroethane, pH, TSS, Iron, TOC	Discharge Monitoring to BSL	B

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PROJECT TITLE: Waste Pits Remedial Action Project

Date: 4/18/00

VARIANCE / FIELD CHANGE NOTICE (Include justification):

Change: (Table 2.2)

1. Changed all container types to plastic, except for VOC.
2. Deleted cooling requirement for metals, radionuclides and total uranium.
3. Decreased cyanide minimum sample volume from one liter to 200 ml.
4. Increased TSS minimum sample volume from 100 ml to 250 ml.
5. Decreased chloride minimum sample volume from 100 ml to 50 ml.
6. Added sulfuric acid preservative requirement for NOx analyte.
7. Increased radionuclide minimum sample volume from 500 ml to two liters.

Justification: (Table 2.2)

1. Plastic performs adequately, costs less and is less likely to break if mis-handled.
2. Preservation by cooling not required by methods.
3. More accurately reflects needs of lab and/or method requirements.
4. More accurately reflects needs of lab and/or method requirements.
5. More accurately reflects needs of lab and/or method requirements.
6. Method requirement.
7. More accurately reflects needs of lab and/or method requirements.

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REQUESTED BY: Doug Taylor, IT Corp

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✓	<small>IT QA Manager</small> <i>[Signature]</i>	5-2-00	✓	<small>FDF WPRAP Environmental Compliance</small> <i>[Signature]</i>	5-10-00
✓	<small>FDF WPRAP Sampling/ Analysis Coordinator</small> <i>[Signature]</i>	5-10-00			
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Table 2.2 Containers, Preservatives, Sample Volumes, and Holding Times for Wastewater, Excavation Water, and Contact Stormwater Samples

Location	Parameter	Container Type	Container Size	Minimum Sample Volume or Weight	Preservative	Holding Time
Clearwell, Influent Tank, Clarifier Influent, Clarifier Effluent, Sand Filter Effluent, IX Effluent, Effluent Tank	Metals	G(TT) ①	1 L	200 mL	4°C pH <2 HNO ₃	6 Months (Hg 28 days)
	Cyanide	G(TT)	1 L	1 L ③	4°C, pH >12 NaOH	14 Days
	Total Suspended Solids, Chloride, NO ₃	G(TT)	1 L	100 mL ④	4°C ⑤	7 Days
	pH, Turbidity	G(TT)	1 L	100 mL	None	Immediately
	VOCs	G(TT)	40 mL	40 mL ⑦	4°C	7 Days
	Radionuclides & Total Uranium	Plastic	1 L	500 mL ⑦	4°C pH <2 HNO ₃ ②	6 Months

Before Variance VOO-015.

G(TT) - Glass with Teflon-lined lid

500000

Table 2.2 Containers, Preservatives, Sample Volumes, and Holding Times for Wastewater, Excavation Water, and Contact Stormwater Samples

Location	Parameter	Container Type	Container Size	Minimum Sample Volume or Weight	Preservative	Holding Time
Clearwell, Influent Tank, Clarifier Influent, Clarifier Effluent, Sand Filter Effluent, IX Effluent, Effluent Tank	Metals	Plastic	1 L	200 mL	pH < 2 HNO ₃	6 Months (Hg 28 days)
	Cyanide	Plastic	1 L	200 mL	4°C, pH > 12 NaOH	14 Days
	TSS	Plastic	1 L	250 mL	4°C	7 Days
	Chloride	Plastic	1 L	50 mL	4°C	7 Days
	NO ₃	Plastic	1 L	100 mL	pH < 2 H ₂ SO ₄	7 Days
	pH, Turbidity	Plastic	1 L	200 mL	None	Immediately
VOCS	G(T)	40 mL	40 mL (plus trip blank)	4°C	7 Days	
Radionuclides & Total Uranium	Plastic	1 L	2 L	pH < 2 HNO ₃	6 Months	

After Variance 00-015

G(T) - Glass with Teflon-lined lid

1 Cooling samples to 4°C is a goal that should be diligently pursued by icing or refrigerating the sample from time of collection until time of analysis. It is expected that samples stored overnight before shipment to the laboratory will arrive at the laboratory at a temperature of 4°C. Samples delivered to the laboratory the same day that they are collected may not have had sufficient time to cool down to 4°C. If diligent efforts are made to cool the sample to 4°C and the sample is delivered to the laboratory the same day that it is collected, failure to cool the sample to 4°C shall not be cause for qualifying the resulting analytical data.

VARIANCE / FIELD CHANGE NOTICE (FCN)

V 00-016

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Page 1 of 1

PROJECT TITLE: Waste Pits Remedial Action Project

Date: 4/18/00

VARIANCE / FIELD CHANGE NOTICE (Include justification):

Change: (Table 2.12)

1. Re-wrote entire table adding significantly more detail overall and making changes to detection limits, MS frequency, LCS and DUP frequency in response to problems identified with Waste Pit Material SAP Table 2.9 in Fluor non-conformance report (NCR) FY99-1148:

Justification: (Table 2.12)

1. Changes mirror those made to Waste Pit Material SAP Table 2.9 via variance V00-006 since that table is generically equivalent to Environmental Media SAP Table 2.12.

REQUESTED BY: Doug Taylor, IT Corp

DATE: 4/18/00

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✓	IT QA Manager <i>[Signature]</i>	5-2-00	✓	FDF WPRAP Environmental Compliance <i>[Signature]</i>	5-10-00
✓	FDF WPRAP Sampling/ Analysis Coordinator <i>[Signature]</i>	5-10-00	✓		
✓	FDF WPRAP QA Manager <i>[Signature]</i>	5-11-00			
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Table 2.12 QC Checks and Method Performance Criteria for ICP Metals (6010B) – Wastewater, Excavation Water, and Contact Stormwater ASL: B

Before variance V00-016.

REQUIREMENT	FREQUENCY	ACCEPTANCE LEVELS	CORRECTIVE ACTION	COMMENTS
ICVS	Begin	90-110%	Re-calibrate	
CCVS	Every 10 and at end	90-110%	Re-calibrate	
MB	Each Batch	<5xRDL	Re-digest Batch	
ICB/CCB	With ICVS/CCVS	+/- 3 CRDL	Re-calibrate/ Re-analyze last 10	
ICS	Begin & end or every 8 hrs.	80-120%	Re-examine background/ Re-analyze	
LCS	1/20 or 1/batch	80-120%	Re-digest Batch	
MS	Each matrix	75-125%	Re-digest or Post Digestion Spike or MSA	
DUP	1/20 samples	RPD <20% for samples 5 X CRDL	DQO driven	
Detection Limit	NA	NA	NA	Per method 6010

Table 2.13 QC Checks and Method Performance Criteria for GFAA Metals (7000 Series) – Wastewater, Excavation Water, and Contact Stormwater ASL: B

REQUIREMENT	FREQUENCY	ACCEPTANCE LEVELS	CORRECTIVE ACTION	COMMENTS
ICVS	Begin	80-120%	Re-calibrate	
CCVS	Every 10 and at end	80-120%	Re-calibrate	
ICB/CCB	With ICVS/CCVS	+/- 3 CRDL	Re-calibrate/ Re-analyze last 10	
MB	Each Batch	<5xRDL	Re-digest Batch	
LCS	1/20 or 1/batch	80-120%	Re-digest Batch	
DUP	1/20 samples	RPD <20% for samples 5 X CRDL	Re-digest	
MS	Each matrix	75-125%	Re-digest or Post Digestion Spike or MSA	
Detection Limit	NA	NA	NA	Per method 7000

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Table 2.12 QC Checks and Method Performance Criteria for ICP Metals (6010B) – Wastewater, Excavation Water, and Contact Stormwater ASL: B

After Variance V00-016.

REQUIREMENT	FREQUENCY	ACCEPTANCE LEVELS	CORRECTIVE ACTION	COMMENTS
ICB/CCB	After each ICVS/CCVS & before calibration	< RL	Clean sample transfer mechanism/tubing.	
Calibration Curve	Beginning of use & when ICVS/CCVS indicates re-calibration.	N/A	N/A	Either CCB & one standard or CCB & three standards. Defines ICP working range.
ICVS (separate source)	Beginning of day/sequence.	90%-110% of true values.	Re-analyze with fresh ICVS. Re-calibrate if still out.	Analysis cannot proceed unless ICVS is acceptable for all project target analytes.
CCVS	Every ten samples & at conclusion of day.	90%-110%	Re-analyze. Re-calibrate if still out.	Analysis cannot proceed without passing CCVS for all project target analytes.
Interference Check	Beginning & end of sequence or every 8 hrs.	80%-120%	Re-analyze. Re-evaluate interference corrections.	IC should be analyzed following each ICVS/CCVS.
MB	1/20 or 1/batch, whichever is more frequent.	< RL	Clean glassware, etc. & re-digest.	Evaluate batch results for bias effects before resorting to re-digest (IT decision).
LCS	1/20 or 1/digestion batch, whichever is more frequent.	80%-120%	Re-digest batch.	
MS	One per week for same matrix (=every 10 samples). All samples of same matrix analyzed within week will be associated with this matrix QC.	75%-125% for samples with spike analyte native concentrations of < 4X spike level.	Re-analyze. Perform post-digest spike (85%-115%). Perform MSA on all samples. If problem not solved, re-digest entire batch.	MB & LCS must be digested & analyzed with each sample set. MS is performed at twice the frequency required in SW-846.
DUP	Same as above (MS).	RPD <20% for samples > 5X RL.	DQO driven	Same as above (MS).
Reporting Limit (RL)	NA	NA	NA	10% of discharge limit

VARIANCE / FIELD CHANGE NOTICE (FCN)

V 00-017

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PROJECT TITLE: Waste Pits Remedial Action Project

Date: 4/18/00

VARIANCE / FIELD CHANGE NOTICE (Include justification):

INFORMATION ONLY

Change: (Table 2.13)

1. Changed "Detection Limit" to "Reporting Limit".
2. Changed "Detection Limit" to "Reporting Limit" (RL) and established RL as one-tenth of discharge limit.
3. Changed ICB/CCB acceptance level from ± 3 CRDL to $<RL$.
4. Changed MB acceptance level from $<5XRDL$ to $<2XRDL$.
5. Changed LCS acceptance level from 80-120% to 85-115%.

Justification: (Table 2.13)

1. The WPRAP discharge criteria are significantly above the SW-846 MDLs. IT has established a lab Reporting Limit (RL) at a concentration of one-tenth of the discharge criteria. This allows the laboratory to analyze smaller volumes of water and improves the availability of matrix QC since positive results will no longer "mask" QC spike recoveries.
2. Same as number one.
3. Old ICB criteria would have forced corrective actions at concentrations far below project decision-level influence levels. Change to $<RL$ (10% of discharge criteria) provides for corrective action to be required at more reasonable instances which can actually affect project decision-making data.
4. Change alleviates potential for corrective action/re-digest or data rejection to be instituted at MB concentrations far below levels which can influence discharge decisions.
5. Criteria changed to agree with SW-846 requirements.

REQUESTED BY: Doug Taylor, IT Corp.

DATE: 4/18/00

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✓	FDI WPRAP Sampling/ Analysis Coordinator <u>[Signature]</u>	5-10-00			
✓	FDI WPRAP QA Manager <u>[Signature]</u>	5-15-00			
VARIANCE/FCN APPROVED <input type="checkbox"/> YES <input type="checkbox"/> NO			REVISION REQUIRED: <input type="checkbox"/> YES <input type="checkbox"/> NO		

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Table 2.12 QC Checks and Method Performance Criteria for ICP Metals (6010B) – Wastewater, Excavation Water, and Contact Stormwater ASL: B

Before Variance VDO-017.

REQUIREMENT	FREQUENCY	ACCEPTANCE LEVELS	CORRECTIVE ACTION	COMMENTS
ICVS	Begin	90-110%	Re-calibrate	
CCVS	Every 10 and at end	90-110%	Re-calibrate	
MB	Each Batch	<5xRDL	Re-digest Batch	
ICB/CCB	With ICVS/CCVS	+/- 3 CRDL	Re-calibrate/ Re-analyze last 10	
ICS	Begin & end or every 8 hrs.	80-120%	Re-examine background/ Re-analyze	
LCS	1/20 or 1/batch	80-120%	Re-digest Batch	
MS	Each matrix	75-125%	Re-digest or Post Digestion Spike or MSA	
DUP	1/20 samples	RPD <20% for samples 5 X CRDL	DQO driven	
Detection Limit	NA	NA	NA	Per method 6010

Table 2.13 QC Checks and Method Performance Criteria for GFAA Metals (7000 Series) – Wastewater, Excavation Water, and Contact Stormwater ASL: B

REQUIREMENT	FREQUENCY	ACCEPTANCE LEVELS	CORRECTIVE ACTION	COMMENTS
ICVS	Begin	80-120%	Re-calibrate	
CCVS	Every 10 and at end	80-120%	Re-calibrate	
ICB/CCB	With ICVS/CCVS	+/- 3 CRDL ③	Re-calibrate/ Re-analyze last 10	
MB	Each Batch	<5xRDL ④	Re-digest Batch	
LCS	1/20 or 1/batch	80-120% ⑤	Re-digest Batch	
DUP	1/20 samples	RPD <20% for samples 5 X CRDL	Re-digest	
MS	Each matrix	75-125%	Re-digest or Post Digestion Spike or MSA	
Detection Limit	NA	NA	NA	Per method 7000 ②

Table 2.13 QC Checks and Method Performance Criteria for GFAA Metals (7000 Series) – Wastewater, Excavation Water, and Contact Stormwater ASL: B

After Variance V00-017.

REQUIREMENT	FREQUENCY	ACCEPTANCE LEVELS	CORRECTIVE ACTION	COMMENTS
ICVS	Begin	80-120%	Re-calibrate	
CCVS	Every 10 and at end	80-120%	Re-calibrate	
ICB/CCB	With ICVS/CCVS	<RL ③	Re-calibrate/ Re-analyze last 10	
MB	Each Batch	<2xRL ④	Re-digest Batch.	
LCS	1/20 or 1/batch	85%-115% ⑤	Re-digest Batch	
DUP	1/20 samples	RPD <20% for samples 5 X CRDL	Re-digest	
MS	Each matrix	75-125%	Re-digest or Post Digestion Spike or MSA	
Reporting Limit (RL) ①	NA	NA	NA	10% of discharge limit ②

VARIANCE / FIELD CHANGE NOTICE (FCN)

V 00-018

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98SC000001 WPRAP Sampling and Analysis Plan for Environmental Media, Rev 0

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PROJECT TITLE: Waste Pits Remedial Action Project

Date: 4/18/00

VARIANCE / FIELD CHANGE NOTICE (Include justification):

Change: (Table 2.14)

1. Re-wrote entire table adding significantly more detail overall. Acceptance criteria defined instead of stating "per method".

Justification: (Table 2.14)

1. Changes mirror those made to Waste Pit Material SAP Table 2.11 via variance V00-008 since that table is generically equivalent to Environmental Media SAP Table 2.14. Fluor non-conformance report (NCR) FY99-1148 identified problems with Waste Pit Material SAP Table 2.11.

REQUESTED BY: Doug Taylor, IT Corp

DATE: 4/18/00

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✓	FDF WPRAP Sampling/ Analysis Coordinator <i>[Signature]</i>	5-10-00			
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Table 2.14 QC Checks and Method Performance Criteria for Volatile Organics (8260) – Wastewater, Excavation Water, and Contact Stormwater ASL: B

Before Variance V00-018.

REQUIREMENT	FREQUENCY	ACCEPTANCE LEVELS	CORRECTIVE ACTION	COMMENTS
IAP	Start each 12 hr. period	Per method	Re-tune	
IC	Begin, following tune	Per method	Re-calibrate	
CCV	Every 12 hours following tune	Per method	Re-calibrate	
LCS	1/20 or 1/batch	75 - 125%	Re-analyze	
MB	Each Batch	<PQL	Re-analyze	
MS/MSD	1/20 or Each matrix	Per method	Advisory	
Surrogates	All samples	Per method	Re-Extract and Re-analyze	
IS	All samples	Per method	Re-analyze	
Detection Limits	NA	NA	NA	Per method
Standard Concentrations IAP IS MS Surrogate	NA	NA	NA	Per method
Calibration points & ranges ICV CCV	NA	NA	NA	Per method

Table 2.14 QC Checks and Method Performance Criteria for Volatile Organics (8260) – Wastewater, Excavation Water, and Contact Stormwater ASL: B

After Variance V00-018.

REQUIREMENT	FREQUENCY	ACCEPTANCE LEVELS	CORRECTIVE ACTION	COMMENTS
BFB Tune	Each 12 hours of operation.	Meet criteria in Table 4 of method.	Re-tune & re-analyze.	Analysis cannot commence until tune criteria is met.
IB	Prior to calibration, ICV/CCC.	All target analytes < RL. Common solvents < 5 X IDL.	Clean system/syringes.	
Calibration Curve (ICAL)	Beginning of use, when new standards are made & when ICV/CCC indicates re-calibration.	SPCC criteria if in standard. All target compounds <15% RSD or linear to >0.990 correlation. Section 7.3 of method.	System must be calibrated for all project target analytes & surrogates before analysis can proceed.	Five-point standard curve defining working range of the instrument.
ICV (separate source)	Following initial calibration or re-calibration.	± 20% of true values.	Re-analyze with fresh ICV. If still out, evaluate standards & re-calibrate.	Analysis cannot proceed unless ICV is acceptable for all target analytes.
CCC	Each 12 hours following BFB & IB.	80%-120%	Re-analyze. Re-calibrate if still not in.	Analysis cannot proceed without passing CCC for all target compounds.
MB	Each batch	< 20% of RL for target analytes	Clean glassware, vessel, etc. & re-analyze if contamination affects results.	Evaluate batch results for bias effects before resorting to re-analysis (IT decision).
LCS	1/20 or 1/batch, whichever is more frequent.	75%-125% for all target analytes.	Re-analyze. Check Standards. Check purge system.	Evaluate overall QC performance in data validation process.

After Variance V00-018.

MS/MSD	One per month for same matrix (= every 10 samples). All samples of same matrix analyzed within month will be associated with this matrix QC.	Within lab established ranges for samples with spike analyte native concentrations of <4X spike level. RPD < 30%.	Advisory. Re-analyze to confirm any suspected "matrix effects".	±15% of lab established ranges may be acceptable depending upon actual results & possible bias. Decision to accept data is IT's. Lab must consult with IT if QC matrix fails.
Surrogates	Each sample/QC.	Within laboratory acceptance range.	Re-analyze.	IT may choose to accept results that are ±10% of ranges. Lab must consult IT.
ISTD	Evaluate for all samples/QC.	-50% to +100% of ICAL average area.	Re-analyze. Dilute if necessary.	Results cannot be accepted with failing ISTD.
Reporting Limit (RL)	NA	NA	NA	10% of discharge limits for target analytes.

VARIANCE / FIELD CHANGE NOTICE (FCN)

V 00-019

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PROJECT TITLE: Waste Pits Remedial Action Project

Date: 4/18/00

VARIANCE / FIELD CHANGE NOTICE (Include Justification):

Change: (Table 2.15)

1. Added following footnote: "Samples will not be collected when Water Treatment System is inoperative."
2. Combined Clearwell and Influent Tank sampling and reporting from separate requirements to an "either one or the other" requirement.

Justification: (Table 2.15)

1. Amplifying/clarifying information.
2. Water at each of these points is essentially the same.

REQUESTED BY: Doug Taylor, IT Corp

DATE: 4/18/00

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✓	IT QA Manager <i>[Signature]</i>	5-2-00	✓	FDF WPRAP Environmental Compliance <i>[Signature]</i>	5-10-00
✓	FDF WPRAP Sampling/ Analysis Coordinator <i>[Signature]</i>	5-10-00			
✓	FDF WPRAP QA Manager <i>[Signature]</i>	5-10-00			
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Table 2.15 Wastewater, Excavation Water, and Contact Stormwater Sampling - Start-Up Period

Sample Point	Type	REPORTING		PROGRESS		OBSERVATIONS	
		Frequency	Analysis	Frequency	Analysis	Frequency	Analysis
Clearwell	Grab	1/week	lab suite	1/day	on-site set	1/day	clarity
Influent Tank	Grab	1/week	lab suite	1/day	on-site set	NA	NA
Clarifier Influent	In-line monitor	NA	NA	continuous	pH	4/day	operation of unit
Clarifier Effluent	Grab	NA	NA	1/day	on-site set	4/day	clarity
Sand Filter Effluent	Grab	NA	NA	1/day	on-site set	4/day	clarity
IX Effluent	In-line monitor	NA	NA	continuous	pH, turbidity	4/day	operation of units
Effluent Tank	Grab	NA	NA	1/day	on-site set	4/day	clarity
Effluent to BSL	24-Hr Composite	3/week	lab suite	NA	NA	4/day	operation of unit

Before Variance V00-019.

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Notes:

Metals precipitation system will run @ pH=10 in clarifier and sand filter. Tests will also be performed at normal pH.
 Control room alarms on High/Low pH and High turbidity

Off-Site Lab Suite:

Arsenic, Cadmium, Chromium, Copper, Nickel, Silver, Cyanide, Radium-226, Thorium-230, Thorium-232, Total Uranium, Chloride, Nitrates, 1,1,1-Trichloroethane, Tetrachloroethane, 1,1-Dichloroethane, 1,1-Dichloroethane, Chloroethane, pH, Total Suspended Solids, Iron, Total Organic Carbon.
 Total Uranium; Total Suspended Solids; pH; Turbidity; Nickel, Chromium, and Copper (all by XRF).

On-Site IT Lab Set:

838

Table 2.15 Wastewater, Excavation Water, and Contact Stormwater Sampling - Start-Up Period

Sample Point	Type	REPORTING		PROCESS		OBSERVATIONS	
		Frequency	Analysis	Frequency	Analysis	Frequency	Analysis
Clearwell or Influent Tank	Grab	1/week	lab suite	1/day	on-site set	1/day	clarity
Clarifier Influent	In-line monitor	NA	NA	continuous	pH	4/day	operation of unit
Clarifier Effluent	Grab	NA	NA	1/day	on-site set	4/day	clarity
Sand Filter Effluent	Grab	NA	NA	1/day	on-site set	4/day	clarity
IX Effluent	In-line monitor	NA	NA	continuous	pH, turbidity	4/day	operation of units
Effluent Tank	Grab	NA	NA	1/day	on-site set	4/day	clarity
Effluent to BSL	24-Hr Composite	3/week	lab suite	NA	NA	4/day	operation of unit

Notes:

Samples will not be collected when Water Treatment System is inoperative.

Metals precipitation system will run @ pH=10 in clarifier and sand filter. Tests will also be performed at normal pH.

Control room alarms on High/Low pH and High turbidity

Off-Site Lab Suite:

Arsenic, Cadmium, Chromium, Copper, Nickel, Silver, Cyanide, Radium-226, Thorium-230, Thorium-232, Total Uranium, Chloride, Nitrates, 1,1,1-Trichloroethane, Tetrachloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, Chloroethane, pH, Total Suspended Solids, Iron, Total Organic Carbon.

On-Site IT Lab Set:

Total Uranium; Total Suspended Solids; pH; Turbidity; Nickel, Chromium, and Copper (all by XRF).

2118
 After Variance 000-Dig.

VARIANCE / FIELD CHANGE NOTICE (FCN)

V 00-020

WBS NO.: PROJECT/DOCUMENT

98SC000001 WPRAP Sampling and Analysis Plan for Environmental Media, Rev 0

Page 1 of 1

PROJECT TITLE: Waste Pits Remedial Action Project

Date: 4/18/00

VARIANCE / FIELD CHANGE NOTICE (Include Justification):

Change: (Table 2.16)

1. Added following footnote: "Samples will not be collected when Water Treatment System is inoperative."
2. Combined Clearwell and Influent Tank sampling and reporting from separate requirements to an "either one or the other" requirement.

Justification: (Table 2.16)

1. Amplifying/clarifying information.
2. Water at each of these points is essentially the same.

REQUESTED BY: Doug Taylor, IT Corp

DATE: 4/18/00

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571

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✓	<small>IT QA Manager</small> <i>[Signature]</i>	5-2-00	✓	<small>FDF WPRAP Environmental Compliance</small> <i>[Signature]</i>	5-10-00
✓	<small>FDF WPRAP Sampling/ Analysis Coordinator</small> <i>[Signature]</i>	5-10-00			
✓	<small>FDF WPRAP QA Manager</small> <i>[Signature]</i>	5-11-00			
VARIANCE/FCN APPROVED [] YES [] NO			REVISION REQUIRED: [] YES [] NO		

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VARIANCE / FIELD CHANGE NOTICE (FCN)

V 00-021

3112

WBS NO.: PROJECT/DOCUMENT

98SC000001 WPRAP Sampling and Analysis Plan for Environmental Media, Rev 0

Page 1 of 1

PROJECT TITLE: Waste Pits Remedial Action Project

Date: 4/18/00

VARIANCE / FIELD CHANGE NOTICE (Include justification):

Change: (Table 2.17)

1. Added following footnote: "Samples will not be collected when Water Treatment System is inoperative."
2. Combined Clearwell and Influent Tank sampling and reporting from separate requirements to an "either one or the other" requirement.

Justification: (Table 2.17)

1. Amplifying/clarifying information.
2. Water at each of these points is essentially the same.

REQUESTED BY: Doug Taylor, IT Corp

DATE: 4/18/00

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✓	IT Lab Manager <i>[Signature]</i>	2K0502	✓	FDF RDQ <i>[Signature]</i>	5-10-00
✓	IT QA Manager <i>[Signature]</i>	5-2-00	✓	FDF WPRAP Environmental Compliance <i>[Signature]</i>	5-10-00
✓	FDF WPRAP Sampling/Analysis Coordinator <i>[Signature]</i>	5-10-00			
✓	FDF WPRAP QA Manager <i>[Signature]</i>	5-10-00			
VARIANCE/FCN APPROVED [] YES [] NO			REVISION REQUIRED: [] YES [] NO		

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NA - Conforms to the Subcontract Requirements
 [] B - Minor Comment - Incorporate and Resubmit
 [] C - Revise and Resubmit
 Sig: *[Signature]* Date: 7-5-00

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Table 2.17 Wastewater, Excavation Water, and Contact Stormwater Sampling - Long-Term Period

Sample Point	Type	REPORTING		PROGRESS		OBSERVATIONS	
		Frequency	Analysis	Frequency	Analysis	Frequency	Analysis
Clearwell	Grab	1/quarter	lab suite	1/week	on-site set	1/day	clarity
Influent Tank	Grab	1/month	lab suite	1/week	on-site set	NA	NA
Clarifier Influent	In-line monitor	NA	NA	continuous	pH	4/day	operation of unit
Clarifier Effluent	Grab	NA	NA	1/week	on-site set	4/day	clarity
Sand Filter Effluent	Grab	NA	NA	as needed	on-site set	4/day	clarity
IX Effluent	In-line monitor	NA	NA	continuous	pH, turbidity	4/day	operation of unit
Effluent Tank	Grab	NA	NA	1/day	on-site set	4/day	clarity
Effluent to BSL	24-Hr Composite	1/week	lab suite	NA	NA	4/day	operation of unit

Notes:

Above is anticipated sampling frequency based on satisfactory results from start-up and intermediate periods. Control room alarms on High/Low pH and High turbidity

Off-Site Lab Suite:

Arsenic, Cadmium, Chromium, Copper, Nickel, Silver, Cyanide, Radium-226, Thorium-230, Thorium-232, Total Uranium, Chloride, Nitrates, 1,1,1-Trichloroethane, Tetrachloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, Chloroethane, pH, Total Suspended Solids, Iron, Total Organic Carbon.
 Total Uranium; Total Suspended Solids; pH; Turbidity; Nickel, Chromium, and Copper (all by XRF).

On-Site IT Lab Set:

Before Variance V00-021.

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Table 2.17 Wastewater, Excavation Water, and Contact Stormwater Sampling - Long-Term Period

Sample Point	Type	REPORTING		PROCESS		OBSERVATIONS	
		Frequency	Analysis	Frequency	Analysis	Frequency	Analysis
Clearwell or Influent Tank	Grab	1/quarter	lab suite	1/week	on-site set	1/day	clarity
Clarifier Influent	In-line monitor	NA	NA	continuous	pH	4/day	operation of unit
Clarifier Effluent	Grab	NA	NA	1/week	on-site set	4/day	clarity
Sand Filter Effluent	Grab	NA	NA	as needed	on-site set	4/day	clarity
IX Effluent	In-line monitor	NA	NA	continuous	pH, turbidity	4/day	operation of unit
Effluent Tank	Grab	NA	NA	1/day	on-site set	4/day	clarity
Effluent to BSL	24-Hr Composite	1/week	lab suite	NA	NA	4/day	operation of unit

Notes:

Samples will not be collected when Water Treatment System is inoperative.

Above is anticipated sampling frequency based on satisfactory results from start-up and intermediate periods.

Control room alarms on High/Low pH and High turbidity

Off-Site Lab Suite:

Arsenic, Cadmium, Chromium, Copper, Nickel, Silver, Cyanide, Radium-226, Thorium-230, Thorium-232, Total Uranium, Chloride, Nitrates, 1,1,1-Trichloroethane, Tetrachloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, Chloroethane, pH, Total Suspended Solids, Iron, Total Organic Carbon.

On-Site IT Lab Set:

Total Uranium; Total Suspended Solids; pH; Turbidity; Nickel, Chromium, and Copper (all by XRF).

2118 After Variance V00-021.

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VARIANCE / FIELD CHANGE NOTICE (FCN)

V 00-022

WBS NO.: PROJECT/DOCUMENT

98SC000001 WPRAP Sampling and Analysis Plan for Environmental Media, Rev 0

Page 1 of 1

PROJECT TITLE: Waste Pits Remedial Action Project

Date: 4/18/00

VARIANCE / FIELD CHANGE NOTICE (Include Justification):

Change: (Table 3.1)

1. Reduced Total Uranium container size from one liter to 250 ml.
2. Reduced Total Uranium minimum sample volume from 100 ml to 10 ml.
3. Increased TSS minimum sample volume from 100 ml to 250 ml.
4. Changed TSS container material from glass to plastic.

Justification: (Table 3.1)

1. More accurately reflects needs of lab and/or method requirements.
2. More accurately reflects needs of lab and/or method requirements.
3. More accurately reflects needs of lab and/or method requirements.
4. More accurately reflects needs of lab and/or method requirements.

REQUESTED BY: Doug Taylor, IT Corp

DATE: 4/18/00

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✓	IT QA Manager <i>[Signature]</i>	5-2-00	✓	FDF WPRAP Environmental Compliance <i>[Signature]</i>	5-10-00
✓	FDF WPRAP Sampling/ Analysis Coordinator <i>[Signature]</i>	5-10-00			
✓	FDF WPRAP QA Manager <i>[Signature]</i>	5-10-00			
VARIANCE/FCN APPROVED <input type="checkbox"/> YES <input type="checkbox"/> NO			REVISION REQUIRED: <input type="checkbox"/> YES <input type="checkbox"/> NO		

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Table 3.1 SWM Pond Discharge - Analytes, Methods, Decision Criteria, and Frequency

Analysis	Method	Decision Level	Frequency	Containers	Preservative	Minimum Sample Volume	Holding Time
Total Uranium	ASTM D5174	20 ug/L	Before each Discharge	1L Plastic ¹	4° C pH < 2 HNO ₃	100 mL ²	6 Months
Total Suspended Solids	EPA 160.2	N/A	During each Discharge	1 L GG(T) ⁴	4° C	100 mL ³	7 days

3112
 Before variance VOO-02a.

Table 3.1 SWM Pond Discharge - Analytes, Methods, Decision Criteria, and Frequency

Analysis	Method	Decision Level	Frequency	Containers	Preservative	Minimum Sample Volume	Holding Time
Total Uranium	ASTM D5174	20 ug/L	Before each Discharge	250 mL Plastic (1)	pH < 2 HNO ₃	10 mL (2)	6 Months
Total Suspended Solids	EPA 160.2	N/A	During each Discharge	1 L Plastic (4)	4° C	250 mL (3)	7 days

1 Cooling samples to 4° C is a goal that should be diligently pursued by icing or refrigerating the sample from time of collection until time of analysis. It is expected that samples stored overnight before shipment to the laboratory will arrive at the laboratory at a temperature of 4° C. Samples delivered to the laboratory the same day that they are collected may not have had sufficient time to cool down to 4° C. If diligent efforts are made to cool the sample to 4° C and the sample is delivered to the laboratory the same day that it is collected, failure to cool the sample to 4° C shall not be cause for qualifying the resulting analytical data.

12181 After variance VDD-022

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VARIANCE / FIELD CHANGE NOTICE (FCN)

V 00-023

WBS NO.: PROJECT/DOCUMENT

98SC000001 WPRAP Sampling and Analysis Plan for Environmental Media, Rev 0

Page 1 of 1

PROJECT TITLE: Waste Pits Remedial Action Project

Date: 4/18/00

VARIANCE / FIELD CHANGE NOTICE (Include Justification):

Change: (Table 9.1)

1. Converted "Turn Times" for data reporting from hours to days.
2. Increased "Turn Time" for Dryer Stack report from 168 hours to 28 days.

Justification: (Table 9.1)

1. Simplifies presentation. Makes table easier to understand.
2. Experience indicates that getting the samples analyzed and reported takes much longer than 168 hours/7 days.

REQUESTED BY: Doug Taylor, IT Corp

DATE: 4/18/00

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✓	IT Lab Manager <i>[Signature]</i>	2K0502	✓	FDF RDQ <i>[Signature]</i>	5-10-00
✓	IT QA Manager <i>[Signature]</i>	5-2-00	✓	FDF WPRAP Environmental Compliance <i>[Signature]</i>	5-10-00
✓	FDF WPRAP Sampling/ Analysis Coordinator <i>[Signature]</i>	5-10-00			
✓	FDF WPRAP QA Manager <i>[Signature]</i>	5-10-00			
VARIANCE/FCN APPROVED [] YES [] NO			REVISION REQUIRED: [] YES [] NO		

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TABLE 9.1 WPRAP Summary Reports

After Variance V00-023.

Location	Matrix	Hard Copy Deliverable	Turn Time Hard Copy	Electronic Deliverable	Turn Time Electronic
Clearwell	Liquid	Summary	7 days	Access Diskette	7 days
SWM Pond	Liquid	Summary	1 day	Access Diskette	1 day
Dryer Stack (Continuous Isokinetic Sampling)	Off-gas	Summary	28 days	Access Diskette	28 days
Water Treatment System Effluent	Liquid	Summary	7 days	Access Diskette	7 days

TABLE 9.1 WPRAP Summary Reports

Before variance V00-023.

Location	Matrix	Hard Copy Deliverable	Turn Time Hard Copy	Electronic Deliverable	Turn Time Electronic
Clearwell	Liquid	Summary	168 hours	Access Diskette	168 hours
SWM Pond	Liquid	Summary	24 hours	Access Diskette	24 hours
Dryer Stack (Continuous Isokinetic Sampling)	Off-gas	Summary	168 hours	Access Diskette	168 hours
Water Treatment System Effluent	Liquid	Summary	168 hours	Access Diskette	168 hours

TABLE 9.1 WPRAP Summary Reports

After Variance V00-023.

Location	Matrix	Hard Copy Deliverable	Turn Time Hard Copy	Electronic Deliverable	Turn Time Electronic
Clearwell	Liquid	Summary	7 days	Access Diskette	7 days
SWM Pond	Liquid	Summary	1 day	Access Diskette	1 day
Dryer Stack (Continuous Isokinetic Sampling)	Off-gas	Summary	28 days	Access Diskette	28 days
Water Treatment System Effluent	Liquid	Summary	7 days	Access Diskette	7 days

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