	Comment	Response
1	Page 2, Section 1.1 – This section and this document need to be more specific about has this SAP fits into the integration of functions (characterization, remediation, and closure) that occur in an accelerated action.	A diagram has been added to illustrate how the IASAP and other IA Strategy elements correlate with the accelerated action process.
2	Page 3, Section 1.3 – A) Any addenda to this SAP must be reviewed and approved by the regulatory agencies. We recognize due to the cyclical nature of the DQO's that multiple rounds of sampling may be conducted under a SAP Addendum. Once an addendum is approved it may be appropriate to work on a concurrence basis for the follow-up rounds of sampling. It is not clear how data will be reported to the agencies. The State and the site should discuss details of how real-time data used for decision making will be provided to the regulators. B) RFETS submitted revised language on this section, our comments on that revision are: 1. Add bullets for the Elements of the IASAP which are applied and the Rationale for the use of the sampling methodology. 2. The methodologies (biased, Smartsampling, and statistical gridding) are not adequately included in this document. 3. There is no language in RFCA to define what "non-concurrence" of the LRA means, however, "non-approval" is defined by a process in RFCA.	A) The approval process is currently being discussed with the agencies and Sections 1.2 and 1.3 of the IASAP have been revised to reflect these discussions. A data management system that will couple database and GIS capabilities is being developed. This system will allow the regulatory agencies and RFETS to view the same data at the same time so that proposed sampling locations can be discussed. A new section has been added to Section 6 to describe this system. B) 1. A bullet stating that the "Sampling methodology for each IHSS, PAC, or UBC site" was added to Section 1.3. 2. The IASAP Addenda will note what methodology was used to identify proposed sampling locations. The methodologies are described in the IASAP and are not re-described in the Addenda. 3. The phrases "non-concurrence" and "non-approval" do not appear in the Draft IASAP or in the revised text.

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	4. We think 15 working days from the receipt of an addendum document is an attainable turnaround for approval.	4. As agreed with the regulatory agencies, there will be a 14-calendar day approval period.
3	Section 2.3.2 OU9 – Original Process Waste Lines - The test references Figure 4, which shows only the outside tanks. The process waste lines are shown in Figures 22 through Figure 25D, which should also be referenced.	This section provides an overview of the former OU 9 and is not intended to provide complete information on the OPWL. An additional figure, that shows the location of the OPWL, has been added.
4	Section 3.1.1 – A) This section has been reviewed with the understanding that some of the previous assumptions regarding Tier I and Tier II levels may change based the choice of restricted or unrestricted use action levels. Currently there is little or no difference between the Tiers for surface soils and subsurface soils. Based on the RSALs process and the Project Coordinator's agreements the concentration values could be changed based on priorities set by those groups. B) How well are the MDL's in Appendix D. known before the contract for each field method is completed? C) Inputs to the Decisions (pages 21 and 26) The following replacement text is suggested for items 4.f) and 6.f) in these sections respectively: For sites with soil data values exceeding Tier I	A) The IASAP DQOs will be reevaluated if RFCA Tier I and Tier II action levels change. B) Instrument MDLs proposed in Appendix D are currently being evaluated. If MDLs for proposed instruments cannot be met, other instrumentation with MDLs below RFCA Tier II values will be evaluated. C) The text has been revised to the suggested text, with the underlined changes: For sites with soil data values exceeding ~~Tier I and/or~~ Tier

		and/or Tier II ALs, the spatial extent of the AOC will be established by delineating detectable contamination; i.e., PCOC values above the background mean plus two standard deviations for inorganics and radionuclides, and PCOC values above detection limits for organics. Additionally, PCOC values above Tier I ALs and PCOC values above Tier II Als will be delineated. There is no lower limit on the size of an AOC; however, no single AOC will exceed (TBD; equal to the size of the smallest exposure unit used in the CRA) acres. Data will be aggregated over the AOC according to the decision rules. The 95% upper confidence limit (UCL) of the mean for each PCOC will be compared to the Tier I and Tier II ALs in order to make appropriate remedial decisions. When evaluation of a Tier I exceedance indicates an area of very limited extent (i.e., a hot spot), data aggregation may not be appropriate. The methodology for determining potential hot spots is described in Section 4.3.	II ALs, the spatial extent of the AOC will be established by delineating ~~detectable contamination; i.e.,~~ PCOC values above the background mean plus two standard deviations for inorganics and radionuclides, and PCOC values above detection limits for organics. ~~Additionally,~~ PCOC values above Tier I ALs and PCOC values above Tier II Als will be delineated. There is no lower limit on the size of an AOC; however, no single AOC will exceed ~~(TBD; equal to the size of the smallest exposure unit used in the CRA)~~ 10 acres or an approved EU. ~~or.~~ The process for determining the AOC is shown in Figure ___ and described below: • Compare data for inorganics and radionuclides to the background mean plus two standard deviations, compare data for organics to detection limits; • Establish AOCs based on the spatial distribution of data; • ~~Data will be~~ aggregate~~d~~ data over the ~~over the~~ AOC according to the decision rules~~.~~; • Compare ~~T~~the 95% upper confidence limit (UCL) of the mean for each PCOC ~~will be compared~~ to the Tier I and Tier II ALs ~~in order to make appropriate remedial decisions.~~ • When evaluation of a Tier I exceedance indicates an area of very limited extent (i.e., a hot spot), data aggregation may not be appropriate. The methodology for determining potential hot spots is described in Section 4.3.

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		The 10-acre size for the AOC is as stated in the RFCA Appendix 3, Section 3.7.2. The determination of the AOC language is taken from the IGD.
	D) Page 20 - Analyzing for a complete PCOC list is compatible with the site's desire to accomplish as much sampling as possible in one phase and would eliminate data gaps in the analyte by analyte evaluation for the CRA.	D) Soil in IA Groups will be analyzed for specific PCOCs when process knowledge or existing analytical data indicated that there is a restricted list of PCOCs for the group. In areas where process knowledge or existing analytical data do not indicate a restricted PCOC list, or there is no process knowledge or existing analytical data to constrain the list, analytes listed in the RFCA ALF will be included on the PCOC list.
	E) Page 23 - The Decision Rules for characterization sampling could be simplified by assuming that action levels account for background levels; i.e., if a background level for an organic or radionuclide is higher than its Tier II AL, the background level becomes the de facto soil AL. This procedure is similar to the protocol for groundwater ALs (RFCA Attachment 5, 3.3.C.3). Comparisons to background or detection levels would then be superfluous to comparisons to ALs.	E) The DQOs, including decision rules were developed with the regulatory agencies. The comparison to background and detection limits is specified for determining the AOC.
	F) Page 23 - In Decision Rule #5, it is unclear which PCOC in a sum of ratios that exceeds 1 becomes a COC. These DQOs do not incorporate our comment that the text should say, "some action has to be taken".	F) The decision rules have been modified and a new figure has been added to clarify when a PCOC becomes a COC (see attached figure and text). Decision rule #5 does not lead to an action, it leads to Decision Rules #7, 8, and 9 which

	Data evaluation and aggregation are not the only possible actions that should come out of this step. G) It is unclear what kind of data will be acceptable for the CRA, and what will not. Some sections differ from conclusions reached during meetings with the regulators. H) 1. Section 3.1.3 Final Characterization of the Industrial Area for the Comprehensive Risk Assessment - Inputs to the Decisions (page 31) It is not clear exactly what kind of data from pre-demolition survey reports, or pre-remediation data collected for AL comparisons will be used for the CRA. More detail needs to be provided here. 2. Section 4.1 In-Process Sampling (page 35) This section seems to indicate that field data could be used for the CRA. This would only be acceptable if the field data has been demonstrated to be of similar quality and to attain similar detection limits as more standard laboratory procedures. This needs to be stated here.	incorporate the actions. G) Existing data that has passed through the Data Quality Filter and is consistent with risk assessment needs and new characterization and confirmation sampling data collected according to IASAP DQOs and passing the Data Quality Filter may be used in the risk assessment. The Draft CRA Methodology includes DQOs that specify data requirements H) 1. Existing data that has passed through the Data Quality Filter and is consistent with risk assessment needs and new characterization and confirmation sampling data collected according to IASAP DQOs and passing the Data Quality Filter may be used in the risk assessment. The Draft CRA Methodology includes DQOs that specify data requirements. 2. The statement "Field analytical instrument data will be used for the CRA if appropriate data quality can be demonstrated." has been added.
5	Page 32 Section 3.1.3 – Which modeling studies are/will be approvable?	Text has been changed to "Data used for CRA modeling must meet Actinide Migration Evaluation (AME) modeling criteria." be consistent with the Draft CRA Methodology.
6	The IA Data Quality filter needs to be included in this	The IA Data Quality Filter has been added after the first reference

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	document.	to the filter (Section 3.1.1).
7	Section 4.3 Hot Spot Methodology (page 39) Three sections, 4.3, 5.2.2, and 5.3 deal directly with hot spots. It seems more appropriate and efficient to have all this guidance and protocol together in one section, then reference that section as necessary. A) This section states that separate hot spot methodologies will be discussed for each of the three area designations, but only one methodology is needed. Elevated Measurement Comparisons (EMCs) should only be necessary in Class 1 areas. Any direct measurement or sample that is >$DCGL_{EMC}$ (or the EMC for non-radionuclides) in Class 1 areas should be flagged for further investigation. If the elevated measurement is real, then any concentration greater than the $DCGL_{EMC}$ would be included in the calculation of the average hot spot concentration. "…[A]reas of elevated activity should not exist in Class 2 or Class 3 areas." (MARSSIM Rev. 1, p. 8-23) and "Measurements exceeding $DCGL_w$ in Class 2 or Class 3 areas may indicate survey unit mis-classification." (MARSSIM Rev. 1, p. 8-22) Rather than applying a hot spot methodology to areas not expected to have action level exceedances, the IASAP should focus on clarifying and better defining the classifications and how areas can be re-classified. Action level exceedances in a Class 2 area should lead	Section 4.3 introduces the hot spot methodology and concepts. Section 5.2.2 is a description of the Tier I and Tier II comparison and is frequently referred to as a hot measurement test. This is not the Hot Spot Methodology. Section 5.2.3 describes the equations used in determining the hot spot. The equations were included in a Data Evaluation section so the reader would not get lost in equations before understanding the sampling and analysis process. A) This section discusses the hot spot methodology for the 2 designations within the IA. The third designation is the outer BZ and is discussed in the BZSAP. Three hot spot methodologies – one for the IA, inner buffer zone, and outer buffer zone were developed at the request of the regulatory agencies. RFETS staff agree that there should not be any hot spots in Class 2 or 3 areas, however developed the methodology to ensure the regulatory agencies that RFETS would not try to overlook potential hot spots in areas outside IHSSs, PACs, and UBC sites. MARSSIM has been referenced and used as guidance where MARSSIM concepts are useful to the IASAP approach. Modifications to MARSSIM approaches were made because of the additional COCs (metals, VOCs, SVOCs) at the Site.

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	to further investigation. The result may be reclassifying the area of elevated measurements as Class 1 and increasing the sampling density. B) The IASAP appears to rely only on statistically placed grids or SmartSampling to determine where hot spots occur. Additional scanning, as recommended in MARSSIM is not included. Therefore, the level of confidence that hot spots not caught by the gridded sampling will not be as great for this methodology as it is for the MARSSIM methodology. C) DOE Order 5400.5 specifically puts a lower limit on the size of a hot spot, namely 25 square meters, so that there is an upper limit to the allowable concentration of a contaminant in a hot spot that can be left on-site. DOE Orders are "To-Be-Considered" during cleanups, apparently this criterion was not considered for the IASAP. What is the justification for not following this criterion? Incidentally, RAC recommended and Weldon Springs placed lower limits on the size (and therefore upper concentration limits) on hot spots.	B) The IASAP is consistent with MARSSIM requirements. The scanning coverage proposed in the IASAP for HPGe provides a 90% probability of detecting a hot spot. This scanning coverage is consistent with the 903 Pad characterization and is close to the MARSSIM required scan coverage of 100% for Class 1 areas. Additionally, this coverage is consistent with the IASAP DQOs. C) The requirements in DOE Order 5400.5 were reviewed and are incorporated in the IASAP. DOE Order 5400.5 does not actually put a lower limit on the size of a hot spot. It just states that a hot spot methodology must be developed if areas of contamination can be less than 25 square meters. DOE Order 5400.5 states in Section IV.4.a.(1): If the average concentration in any surface or below-surface area less than or equal to 25 square meters exceeds the limit or guideline by a factor of (100/A), [Where A is the area (in square meters) of the region in which concentrations are elevated], limits for "hot-spots" shall also be developed and applied."
8	Page 41 Section 4.3.2 – The SmartSampling variogram range should be determined for each area and contaminant. What is the basis for the statement that it provides good correlation with the 10,000 m^2 hot spot?	The text has been change to the following: " The hot spot size of 10,000m^2 will provide appropriate sampling frequency and spatial information for SmartSampling analysis of the white space and inner BZ.
9	Page 42 Section 4.4.1 – It would be helpful to summarize	The text references section 4.10, which includes sampling

	the procedures in this SOP as not everyone reviewing this document has easy access to the SOP documents. Will SOP's be developed for the field instruments? Since it is possible that bedrock materials could be contaminated as well, sampling methods for consolidated materials should be included here.	procedures. Procedures will be developed for field instruments. The use of hollow-stem augers is described in Section 4.10.2.
10	Table 4 – This table does not appear to be complete. Why are no samples listed for the Solar Evaporation Ponds IHSS when the table indicates sampling is complete? We would like to see an aggregation of this data with SmartSampling that demonstrates no additional sampling is needed. Other areas for which we believe there is sampling data do not indicate that it exists.	Table 4 has been updated. The Solar Evaporation Ponds have been extensively characterized through 2 RFI/RIs as documented in the IM/IRA. The Solar Evaporation Ponds' data will be used in an IA-wide SmartSampling analysis.
11	Page 53 Section 4.5.1 – The MDL and associated lab error must be below the Tier II action levels for confirmation samples to be taken with field instrumentation. For example the MDL of the field method for beryllium would not allow sufficient confidence for confirmation samples.	Field analytical instrument data will be used for confirmation samples if appropriate MDLs can be achieved and appropriate data quality can be demonstrated. MDLs include statistical error and are appropriate for comparison with RFCA ALs.
12	Section 4.5.2 Sampling Locations In the August 3, 2000 IASAP working group meeting, the State stated that a percentage of HPGE sampling needed to be supplemented with alpha spectrometry so that site-specific correlations could be determined. This comment was not incorporated into the IASAP document.	As stated in 4.5.2, correlation between field and laboratory instruments, including HPGe will need to be demonstrated.
13	Page 59 Section 4.8.5 – We are concerned about the lack of detail in this section. We don't believe enough is known about the process waste lines to be able to characterize leaks with biased sampling. Not	Biased sampling at OPWL, NPWL, sanitary sewers, and storm drains provides a place to start the sampling process. As stated in Section 4.8.5, "This in-process approach will allow tracking of contamination along a pipeline…". Contamination found at,

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	characterizing the interiors of the lines and leaving them in place may allow contaminants well above Tier I levels to remain in the subsurface environment. There is a high probability of failure for those structures before any radioactive contamination would decay to safe levels, therefore they should be characterized and treated as other subsurface contamination that has escaped containment.	for example, a known leak, would be tracked in both directions from the leak. More detail on characterization of the OPWL, NPWL, sanitary sewers, and storm drains will be included in the appropriate addenda. Additionally, RFETS staff expects that there will be continuing dialog with the regulatory agencies about this issue prior to characterization. Remediation of the OPWL, NPWL, sanitary sewers, and storm drains will be addressed in the ER RSOP.
14	Page 62 Sections 4.9.1 to 4.9.3 – The information referenced here is not yet included in Appendix G.	The information will be included in the final draft.
15	Page 64 Section 4.10.2 – Surface vegetation may be removed but subsurface organic matter should be included in the soil samples	The text has been revised to indicate that surface vegetation will be removed.
16	Page 64 Section 4.10.3 – What provision will be made to keep contamination from migrating down a borehole and causing lower samples to appear contaminated?	The exterior surfaces of soil samples will be "peeled" to remove material that is in direct contact with the sampler/corer. This will remove material that may have "migrated" down the borehole. Additionally, sampling equipment will be decontaminated between sample intervals.
17	Page 66 Section 4.10.4 – We are interested in the results and evaluation of the HDD and EMWD projects.	The HDD/EMWD fieldwork was completed in December. A report on the results will be completed when laboratory data becomes available.
18	Page 70 Section 5.1.2 – Level III and Level IV measurements are not defined for this calculation.	Level III data is field analytical data. Level IV data is laboratory analytical data. The text has been modified to clarify what kind of measurements are included in the calculation
19	Page 70 section 5.1.4 – How will the number of verification samples be determined when field or onsite analytical methods are not of adequate quality?	Quantity and comparability of verification samples will only be related to other samples that have had appropriate verification and validation. Rejected samples or results, i.e., samples or

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		results of inadequate quality will not be used in evaluation of verification data.
20	Page 71 Section 5.2 – Although decision errors were previously mentioned it would be appropriate to restate them in this section and discuss their implication. It would also be useful to illustrate the discussion with probability diagrams for contaminants of interest such as beryllium and vinyl chloride showing the overlap of the analytical gray area (plus or minus 20% or 30% according to acceptable data guidelines) with the alpha and beta errors around the action level. Other diagrams such as cadmium, uranium, or plutonium can also be presented to illustrate how safe it is to make decisions based on the field instruments.	Probability diagrams, as well as other useful graphics, will be used as appropriate to illustrate gray regions and concentrations compared with action levels. These diagrams are graphical supplements. Statistical and/or numerical formulae will be used to calculate the numbers actually used in decisions and not the referenced graphs themselves.
21	Page 72 Section 5.2.1 – What level of geologic logging will be done for the many shallow boreholes that will be drilled?	Detailed geologic logging will not be performed. Soil color (GSA Munsell Soil Color System), type, contacts, changes, and other unique features will be described in the project logbook and archived in the data management system.
22	Section 5.3 Elevated Measurement Comparison - A) The elevated measurement concentration (EMC) is not equal to the equation listed on page 75. It appears that too many steps have been combined into one equation. The sum of the ratio of the average concentration in an AOC to the action level plus the ratio of the average hotspot concentration to the action level for that size hotspot does not equal the EMC. This sum should be less than 1 in order to make sure that the 25 mrem dose standard or any other action level will not be	A) The process outlined in this section is consistent with the "Elevated Measurement Comparison" methodology in MARSSIM. The only differences are that the Tier I and Tier II action levels are being used as the $DCGL_W$ and the contaminant-specific action level is being area weighted instead of area weighting the $DCGL_W$ to obtain the $DCGL_{EMC}$.

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	exceeded. However, it is incorrect to equate this sum to the EMC. The EMC, or $DCGL_{EMC}$ was defined by MARSSIM as the radionuclide-specific activity concentration within a survey unit corresponding to the release criterion. In other words, it is the concentration of a particular radionuclide in a particular sized hotspot that would result in a 25 mrem/y dose (or any other risk-based limit). MARSSIM calculates the $DCGL_{EMC}$ by multiplying $DCGL_w$ by the appropriate Area Factor for the hot spot size. In order to be consistent with MARSSIM's definition, for radionuclides, $EMC = DCGL_{EA} = AL \times (DCGL_{hotspot} / DCGL_w) = AL \times$ Area Factor For non-radionuclides, $EMC = AL \times (Area_{AOC} / Area_{hotspot}) = AL \times$ Area Factor. The elevated measurement comparison should be done by directly comparing each measurement to the above appropriate EMCs. Equations 5-3 and 5-4 are used to indicate whether a remedy occurs or not; however they should not be equated to the EMC.	
B)	This section needs to clearly delineate the sequence of events that should happen during the elevated measurement comparison. This may be done best in a flow chart, should include the following steps:	B) A flowchart will be prepared that will outline the elevated measurement comparison process.

	• Calculate an EMC ($DCGL_{EMC}$) based on the size of the grid area. • Do a point by point comparison to the appropriate EMC. • If a point is greater than the EMC, it should be investigated further, i.e., • Is the hot spot real, or merely an anomalous analytical result? • If the hot spot is real, how big is it? (nature and extent of the hot spot) • If the hot spot is confirmed, recalculate the EMC for the specific area of the hot spot, A'. • Is the average concentration in the hot spot greater than the hot spot-specific EMC? (Using the area factor $F_{A'}$ for the area A', the average concentration in the area, A' (95% UCL on the mean) should not exceed the product ($F_{A'}$ x $DCGL_W$) in order for the survey unit to meet the release criterion.	
	C) Equations 5-3 and 5-4 use the terms $95\%UCL_{ipu}$ and $Area_{ipu}$. As stated in the second paragraph of this section, the applicable area is the AOC, not the generally drawn IHSS, PAC or UBC areas. The terms, therefore, should be the $95\%UCL_{AOC}$ and $Area_{AOC}$.	C) The term ipu will be changed to AOC.
	D) Please provide a more complete rationale, such as written up in MARSSIM (Aug.2000) page D-22 & 23 for internal radionuclides that justifies the validity of	D) For non-radionuclides, it is well established within the CERCLA risk assessment paradigm that an individual is exposed to contaminants across an exposure area. This is the

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	simply comparing areas of the AOC and of the hot spot as a surrogate for the Area Factor for non-radionuclides.	basis for allowing the use of the 95% Upper Confidence Level (UCL) of the mean concentration as the exposure point concentration for an individual in a CERCLA risk assessment. Therefore, using area weighting is an appropriate technique for non-radionuclides in an AOC. An AOC is a surrogate for the exposure area."
	E) In the August 3, 2000 IASAP working group meeting, the State had asked that the potential for acute toxicity be factored in to the evaluation of whether a hot spot should remain or not. This document uses a value of three times the AL as an upper limit for re-evaluation, and states that this is consistent with RESRAD's release criteria. What is the basis for considering "three times" a chronic action level as safe from an acute standpoint across the board? It appears more toxicologically justifiable to evaluate the potential for individual PCOCs to produce acute effects.	E) The EPA endorses the use of an average concentration for the exposure point concentration in a number of guidance documents. As a matter of fact, risk assessments routinely use an average concentration for the exposure point concentration. Using an average for the exposure point concentrations is appropriate since an individual will randomly contact contaminants over a large area given a long exposure period. It seems to be a reasonable assumption that the upper end of contaminant concentrations could be 3 times the average concentration with no deleterious acute effects even if the average concentration equals the action level. It would certainly be inappropriate to assess acute effects for sample results that just exceed the action level. Toxicity will be evaluated in the CRA
	F) What are the standard units for the parameters in this equation?	F) The units for the analyte concentration and the action level need to be consistent so they cancel each other in the equation. The units for the area of the hot spot and the AOC need to be consistent so they cancel each other in the equation as well. Units will be added to the equation to illustrate this concept.
23	Page 77 Section 6.0 – The geologic data management system is not mentioned here or in Table 9.	The geologic data management system will not be used. A new data management system that integrates analytical data with GIS

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		will be used.
24	Page 80 Section 6.1.7 – It is not clear here and elsewhere in this document what data or reports will be submitted for regulatory approval. Please include discussion of how and when evaluations of field data that lead to a decision to stop or continue sampling and remediation will be provided to the regulators.	A data management system is being developed that will allow the regulatory agencies and RFETS staff to view analytical data on maps. Final data summaries for each IHSS Group will be included in the Closeout report. Remediation decisions are describe in the ER RSOP.
25	Page 82 Section 6.1.9 - What classification system will be used for soil horizons?	Unified Soil Classification System
26	Page 83 Table 10 – Is the GPS system able to provide accurate locations for closely spaced sampling grids?	Current, commercially available GPS systems are accurate to approximately 0.10 feet. K-H will require the characterization contractor to meet standard land surveying units.
27	Page 84 Section 6.1.11 - What is the current and/or anticipated future laboratory capability for radiological samples above the DOT criteria?	Appropriate laboratory capability will be assured. Samples above the DOT 2,000 pCi/g total radioactivity threshold will be shipped in accordance with hazardous materials transportation shipping regulations to offsite analytical laboratories.
28	Page 87 Section 9.0 - The State is especially concerned with H&S requirements for Beryllium.	DOE is concerned about H&S requirements for beryllium and has special H&S requirements for beryllium projects.
29	Figure 13 – The decision to disqualify a PCOC from further consideration should not be made before the nature and extent question is answered.	See response 4F
	Figures 14 - It is also unclear how the last decision box in this flow diagram leads to "Remedial Decision" if the decision is "No."	An additional decision diamond has been added to address analytical results greater than RFCA Tier I ALs.
30	Figure 15 - It isn't clear why the initial input (blue box) is limited to "characterization sample analytical results". Won't confirmation sampling, plus any characterization sampling for areas where no remediation was necessary be the inputs here? Most of the characterization sampling	The initial input box has been changed to include existing analytical data and confirmation data.

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	will no longer represent the area where remediation has occurred since the locations will no longer exist.	
31	Figure 17- What are the inputs to this decision? In evaluating the remedial locations the cost to remediate to an ALARA level should be included in the decision. A) The NFA circles at the top of this flow diagram should be revised so they are consistent with the first two corresponding steps of Figure 18. B) The criteria for how the decision is made that "the data indicate a hot spot" needs to be specifically listed, e.g., spatial distribution, concentration > $DCGL_{EMC}$. C) References to the text would make all of the flow diagrams most useful.	An input box has been added to this diagram. Remedial costs are included in the ER RSOP as is the decision of when and how much to remediate. A) Figure 17 has been changed to be consistent with Figure 18. B) Figure 17 is for SmartSampling. The hot spot decision diamond is used to flow potential hot spot data into the EMC as SmartSampling is not necessarily used for hot spot evaluation. C) In the final draft, the figures will follow the text and will not be at the end of the document.
32	Figure 18 - uses PCOC and COC inconsistently.	Fixed
Comments on Appendix A, Draft Industrial Area Sampling and Analysis Plan Addendum Industrial Area Group 700-4		
1	Page 1 Section 2.0 - The locations within Buildings 771 and 774 should be located on the reference map.	Appendix A is included as an example of what an IASAP Addendum will look like. The IASAP Addendum for this IHSS Group will be based on building specific and existing data. An addendum for sampling within Building 771 is currently being developed. Figures 3 and 4 show where samples will be taken. Additional information on rooms within the buildings is UCNI classified.
2	Page 11 Section 2.0 – The nitric acid dumpster is not identified on any maps, there is one biased sample just to	The nitric acid dumpster is considered part of Building 771.

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	the north of a gray rectangle in the area described in the text, does the rectangle represent this dumpster?	
3	Map 2k-0404 is difficult to read and interpret. It is not labeled with a figure number although the text seems to reference it as Figure 2. The IHSS layer covers the building boundaries so interior and exterior IHSS's are hard to distinguish. Sometimes the IHSS is labeled with an IHSS number and sometimes with a tank number, this inconsistency makes it difficult to match the description to the location. Neither IHSS 124.1, 124.2, 124.3 or the associated tank numbers could be located on this map. It would be helpful to include the PCOC list for a tank or IHSS. The surface soil data posted seems to show several common soil parameters above the background plus two standard deviations and very few PCOC's. Perhaps there is another way to screen the data for this posting that eliminates the clutter caused by highly variable background parameters.	A figure number has been added. The following changes have been made to the figure: • The color of the UBC sites has been changed; • IHSSs and PACs have been labeled. The data was screened according the IASAP DQOs (Section 3.0 of the IASAP).
4	Page 18 Table 1- IHSS 124.1, 124.2, 124.3, and 125 - Why is only surface soil being sampled for these IHSS? Uranium and nitrate in solution are able to infiltrate to subsurface depths. All descriptions indicate there were liquid spills.	The IASAP Addendum for this IHSS Group will be based on building specific and existing data. An addendum for sampling within Building 771 is currently being developed.
5	Figures 3 & 4 – It appears that some gridded sample locations are the same as some biased sample locations, what is the difference between the two types of samples? What do the irregular blue crosshatched areas represent? If these are lakes and ponds as indicated on the larger map have the sediments been sampled? If not, these areas	Biased sample locations are based on the location of known leaks and OPWL. These locations will be revised as more is learned about potential contamination through D&D characterization in the buildings. The gridded sample locations represent the standard statistical approach described in Section 4.2.2 of the IASAP. As stated earlier, Appendix A is included as an example.

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	should be included in the second round of gridded sampling.	Water. These water features are part of different IHSS groups and will be evaluated as part of those groups. Areas outside of IHSS groups will be sampled as part of White Space sampling.
6	IHSS 150.1 – A biased sampling location is listed in the table but there is no sample location posted on the map. The existing data posted on the map does not include radionuclides. Why is this IHSS not included in the second round of grid sampling when the numerous contamination events are not specifically located within the area?	IHSS 150.1 has 8 sample locations biased to collect surface soil data and subsurface soil data about the OPWL beneath the IHSS. There are 10 existing samples locations with acceptable analytical data.
7	Section 3.0 - In general the sampling rationale has not been well developed in this document. Sampling methods should be specified in the addendum. The posted existing data does not provide any information on the PCOCs. The sample locations are generally located with no information as to where a biased sample will be collected. Information on why biased samples were located or how they will be chosen should be included. It would be helpful to number the samples and include a table with the rationale for each biased sample. Does biased sampling mean a single sample, a composite sample, or multiple locations based on professional judgment in the field? Will samples be removed from the borehole for analysis? How will they be collected? What sample size is needed?	The IASAP Addendum for this IHSS Group will be based on building specific and existing data. An addendum for sampling within Building 771 is currently being developed. The sample rationale for each IHSS, PAC, or UBC site was listed in Table 1. Each method is described in Section 4.2 of the IASAP. Existing analytical data greater than background plus 2 standard deviations for radionuclides and metals and detection limit for organics has been posted. Table 1 has been revised to include additional information.

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	What analysis method will be used? What other analytes are included in the field sampling analysis besides the PCOC's?	The figures show sample locations only. Sample numbering will be in accordance with established ASD procedures as described in Section 6.1.12 of the IASAP. Sample numbers are generated several weeks before the sampling event. A biased sample is a single sample, unless it is a borehole where samples will be collected every two feet as stated in Section 4.10.3 of the IASAP. Yes, samples will be removed from the borehole for analysis. Samples will be collected as described in Section 4.10.3 of the IASAP. Sample size is dependent on the analytes of interest. Analytical method is dependent on the analytes of interest. Please refer to Appendix D. PCOCs will be identified from process knowledge and existing analytical data. Data will be evaluated based on the DQOs to determine specific COCs for each IHSS, PAC, and UBC site.
8	Section 6.0 - The initial characterization phase should include general screening sampling and not focus on a narrow PCOC list developed from process information, at this stage of sampling there are too many unknowns. Is a six-inch sample depth from below a building really adequate to characterize what will be exposed when the building is removed?	The initial beneath-building characterization will be targeted to identifying health and safety concerns.
9	Appendix G Page 9 Section 3.1 – It is not appropriate to	All ratios used will assume the most conservative scenarios

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	assume uranium contamination will have an equilibrium activity ratio. Depleted uranium is a common COC at the site and U234 could be found at concentrations greater than a 1:1 ratio with U238 would indicate.	relative to decay (activity) ranges. Derivations of the ratio have been added to Appendix H text.

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