6.0 SUMMARY AND RECOMMENDATIONS

This sections provides the Track 2 conclusions, recommendations, and rationale for the eleven release sites within OU 3-07 that completed a Track 2 investigation during calendar year 1992. The conclusions are based upon an evaluation of the existing data for sites CPP-16, -20, -24, -25, -30, and 32W; and supplemented with the sample results from the Track 2 investigation for sites CPP-26, -28, -31, 32E, -79, and -83. The conclusions, recommendations, and rationale are provided in Table 6-1.

The calculation of risks from exposure to the contamination detected at each release site within OU 3-07 are based on current occupational, future recreational, and future residential (intrusion) scenarios in accordance with the existing Track 2 guidance (DOE/ID-10389). A future residential non-intrusion scenario (i.e., to a maximum depth of 6-inches) was not evaluated for the Tank Farm operable unit for the following two reasons. First, the entire Tank Farm has been covered with a membrane liner and two feet of soil since the time of the contamination releases being investigated under OU 3-07. As a result, contamination should not be present in the upper six inches due to these historical releases and there should be no risk under a non-intrusion future residential scenario. The second reason for not evaluating a non-intrusion scenario is because of the high risks that were calculated for the future residential scenario with intrusion. Given these high risks, it does not seem prudent to evaluate a non-intrusion future use scenario where institutional controls cannot be maintained.

The evaluation of risk to a current occupational receptor from exposure to site contaminants are based on an exposure duration of 8 hours/day, 250 days/year for 25 years without any institutional controls. This is not a reasonable scenario for the ICPP considering the current institutional controls that restricts worker entry into the tank farm, maintains work control procedures and practices required for employees when working in radiation areas, and closely monitors the radiation doses that may potentially may be received by occupational receptors. Given these institutional controls, the exposures under a current occupational scenario as evaluated in this Track 2 are not possible at the ICPP.

The future use scenarios, recreational and residential, are assumed to begin in 30 years from the present (i.e., year 2022). The scenario of a residence being established at the ICPP, and especially the Tank Farm, in 30 years is highly unlikely and not reasonable for a future use scenario. Several of the reasons why a future residential scenario is unlikely include the geographic location of the ICPP, the lack of surface water available at the site, and the uncertain future of the wastes currently being stored within the Tank Farm. According to the INEL Consent Order (secondary containment at the Tank Farm), the closure date for the wastes within the HLLW tanks is the year 2015. This is the last date that wastes can be stored within the tanks and does not include any decontamination and decommissioning (D&D) efforts that would be necessary prior to establishing a residence at the site.

Table 6-1. Summary and Recommendations for the Release Sites in OU 3-07

Site	Track 2 Conclusions	Recommendations	Rationale
General OU	During the course of the Track 2 investigation, it became apparent that contamination in the Tank Farm needed to be characterized as a whole versus individual release sites that have been identified to date. The basis for this conclusion was that through additional interviews with plant personnel, other locations within the tank farm were identified as being a potential concern due to past releases. In addition, results from samples taken at sites CPP-26 and CPP-79 indicate that separate releases (i.e. contaminated areas) were encountered rather than those originally identified.	Future characterization of the Tank Farm should consider the Tank Farm as a whole site. The characterization should include the contamination encountered at locations CPP-26 and CPP-79, and the additional areas of concern have been potentially identified and are currently undergoing review by the new unit identification process.	The current approach of characterizing individual sites within the Tank farm is equivalent to only characterizing known hot spots. There is a need to characterize the Tank Farm as a whole in order to adequately assess the risks. In addition, this would facilitate any future potential actions at this site since any remedial actions are likely to be for the entire Tank farm, rather than individual sites.
CPP-16	Approximately 3000 gallons of low level contaminated wastewater were released during a routine transfer of solution from tank WM-181 to the Process Equipment Evaporator feed Tank WL-102. Due to the depth of contamination, the only complete pathway was to groundwater under the residential scenario. The results of risk screening calculations for this pathway indicate that the risk is low.	No Further Action	Risk screening calculations indicate a low risk associated with this site.

Table 6-1. Summary and Recommendations for the Release Sites in OU 3-07

Site	Track 2 Conclusions	Recommendations	Rationale
CPP-20	This site is the location of the Radioactive Waste Unloading Area. It was reported that occasional spills of radioactive liquid contaminants occurred during the unloading process through leaks in hoses. The spills were reportedly cleaned up as they occurred. During the Scoping Process it was discovered that the entire site has been excavated to 40 feet and backfilled with clean materials as a result of a Facility Upgrade Project (FPFU). In addition, surface radiologic surveys taken in 1991 show no radiologic readings above background in the subject area.	No Further Action (Effects from potentially contaminated backfill will be evaluated during the Comprehensive RI/FS).	Although, no records exist to verify that clean up of the spills took place, a surface radiation survey taken in 1991 show no elevated radiation concentrations above background. In addition, interviews with the FPFU project personnel indicate that the only contamination encountered during the excavation was found away from the release location near valve box C-32. This would indicate that there is a high potential that the original contamination was cleaned up as reported. Otherwise, residual contamination would have been encountered.
CPP-24	Approximately 1 gallon of radioactively contaminated solution was spilled from a bucket onto the ground while working on tank WM-180 on February 16, 1954. The spill contaminated an area of approximately 3x6 ft according to the incident report. Maximum radiation, both horizontally and vertically, was 400 mR/hr beta-gamma.	No Further Action	The exact location of this spill is unknown. According to the entry made in the Health Physics Technicians logbook, the contaminated soil was removed.

Table 6-1. Summary and Recommendations for the Release Sites in OU 3-07

Site	Track 2 Conclusions	Recommendations	Rationale
CPP-25	This site is the location of the historical Radioactive Waste Unloading Area. It was reported that an undocumented line released radioactive liquid waste in 1960. The spill was reportedly removed. In addition, during the Scoping Process it was discovered that the entire site has been excavated to 40 feet and backfilled with clean material as a result of a Facility Upgrade Project. Therefore, there is low no risk associated with the site.	No Further Action (Effects from potentially contaminated backfill will be evaluated during the Comprehensive RI/FS).	Although, no records exist to verify that clean up of the spills took place, interviews with the FPFU project personnel indicate that the only contamination encountered during the excavation was found away from the release location near valve box C-32. This would indicate that there is a high potential that the original contamination was cleaned up as reported. Otherwise, residual contamination would have been encountered.

Table 6-1. Summary and Recommendations for the Release Sites in OU 3-07

Site	Track 2 Conclusions	Recommendations	Rationale
CPP-26	The release at this site consists of two separate areas: 1) the area outside the Tank Farm that was contaminated by a steam release and 2) the area within the Tank Farm near the release that was contaminated by both a steam and liquid release. The area outside the Tank Farm (contaminated solely by the steam release) is no longer contaminated due to radioactive decay. This conclusion is based upon the results from the 1990-1991 surface radiation surveys where contamination was not detected. The concentration of contaminants detected within the Tank Farm (particularly Cs-137) is significantly higher than would be expected from the 1964 release and therefore, may not be related to the release being investigated. The calculated risk at this site to a future residential receptor is 1.3E-01 from external exposure to Cs-137.	Based upon knowledge of the release and the Track 2 characterization, this site is separated into an area outside the Tank Farm and an area inside the Tank Farm. A No Further Action (NFA) is recommended for the area outside the Tank Farm. Additional characterization to determine the extent of contamination from a possible unknown release is recommended for the area within the Tank Farm. This additional work is recommended for the Comprehensive RI/FS for WAG 3.	For the area outside the Tank Farm, the NFA recommendation is based on the lack of surface contamination detected during the 1991 radiation surveys. For the site within the Tank Farm, the additional characterization recommendation is based on an unacceptable risk calculated for future residential receptors and the source of the contamination being unknown. Without knowing the nature and extent of contamination, an accurate estimate for the risk cannot be calculated.

Table 6-1. Summary and Recommendations for the Release Sites in OU 3-07

Site	Track 2 Conclusions	Recommendations	Rationale
CPP-28	The chronic risk calculated at this site to a future residential receptor is 1.0E+00 from both soil ingestion and external exposure to Cs-137. The overall uncertainty has a moderate to high potential to either over- or underestimate the risk. This is because the conclusions are based on historical information following the release and the assumed composition of the waste stream. No sample data is available for calculating risk. Due to the depth of contamination, there is no risk to Current Occupational or Future Recreational Scenario given the assumptions outlined in the Track 2 guidance.	Comprehensive RI/FS - Although, it is highly unlikely that this area would be used for future residents or a recreational scenario within the next hundreds of years due to the location of the INEL, contamination at the Tank Farm, the uncertainty of the waste stored there, and the number of years remaining before this Operable Unit may be placed back into the public domain, this site is recommended for additional characterization to better define the extent of contamination and to collect the parameters required to evaluate possible remedial actions. This recommendation is based upon the potential risks to a residential receptor via the groundwater pathway and the uncertainties associated with the assessment.	The extent of contamination at this site is based on the "observation" wells that were installed following the discovery of the release in 1974. The concentration of contaminants is based on an assumption of the composition of the waste stream and the volume released. Both of these assumptions have a high degree of uncertainty and since unexpected high level radioactive contamination was discovered in the bottom of a borehole (CPP-79-1) located approximately 30 feet from this site, the extent of contamination from this site is in question. Due to the high levels of contamination, additional investigation as part of the Comprehensive RI/FS is recommended.
CPP-30	A 20'x20' area between valve boxes B-5 & B-9 was contaminated to levels up to 1R/hr as a result of routine maintenance operations in 1975. The contaminated soil was removed and placed in four 55 gallon drums and shipped to RWMC for disposal.	No Further Action	No records exist verifying the effectiveness of the removal; however, the 1990-1991 surface radiation surveys of the area did not show radioactive contamination above background levels.

Table 6-1. Summary and Recommendations for the Release Sites in OU 3-07

Site	Track 2 Conclusions	Recommendations	Rationale
CPP-31	The chronic risks calculated at this site to a future residential, future recreational and current occupational receptors are 2.3E-01, 2.4E-02, and 1.0E+00 respectively from external exposure to Cs-137. The overall uncertainty has a moderate to high potential to either over- or underestimate the risk for this site. This is because the conclusions are being based on historical information following the release and supported by recent subsurface radiation measurements.	Comprehensive RI/FS	It is not expected that the collection of additional characterization data at this site will reduce the calculated risk to within acceptable levels. However, it is recommended to assess the contamination within the Tank Farm as a single unit in order to evaluate possible remedial options. The RI/FS was selected versus an interim action (IA) to allow for the tank farm to be evaluated as a whole unit and secondly, upgrades to the tank farm are scheduled to take place from FY 93 to 12/95; therefore, an IA at this time would not be beneficial. The Comprehensive RI/FS is scheduled to begin in FY 95.

Table 6-1. Summary and Recommendations for the Release Sites in OU 3-07

Site	Track 2 Conclusions	Recommendations	Rationale
CPP-32E	The Track 2 investigation collected three soil samples from a single borehole located as close to the source of contamination as possible. The calculated risk using the maximum detected concentration yielded 8.1E-03 for a future residential receptor and 7.5E-06 for a future recreational receptor due to external exposure to Cs-137. The uncertainty has a moderate to high potential to overestimate the risk.	No Further Action	The risk calculated at this site is based on the maximum concentrations detected at the point of release. Given the low rate of release (i.e., release due to condensate from a valve box) causing minimal lateral contamination and the observed decrease in contamination with depth, it is expected that a more reasonable estimate of the exposure concentration, other than the maximum, at this site would result in an acceptable risk. In addition, the more appropriate scenario for this unit is Future Recreational which is already within the acceptable risk range.

Table 6-1. Summary and Recommendations for the Release Sites in OU 3-07

Site	Track 2 Conclusions	Recommendations	Rationale
CPP-32W	A 4'x2' area of contaminated soil was discovered in December 1976 located 50 feet NW of valve box B-4. The radiation measured as high as 2R/hr beta-gamma and extended to a depth of 12 inches. Due to the size of valve box B-4, only the general location of this site is known. Surface radiation readings do not indicate contamination above background in the general area.	Comprehensive RI/FS	Due to the size of the contaminated area and the fact that only a general location was known, it was decided during the scoping process to defer work associated with this site to the Comprehensive RI/FS. This decision was made on the basis that a greater risk would be caused by attempting to locate the site by placing numerous boreholes within the tank farm membrane and potentially impairing its integrity. In addition, based upon the high risk associated with sites CPP-28 & 31 made during the scoping process, it appeared likely that a remedial action would potentially be required for the entire tank farm. Thus any remedial action would include remediation of site CPP-32W, if required.

Table 6-1. Summary and Recommendations for the Release Sites in OU 3-07

Site	Track 2 Conclusions	Recommendations	Rationale
CPP-79	The contamination detected at this site appears to be from two separate releases. One release, consisting of low level radioactive waste, was detected from a depth between 14 and 22 feet bls and the other release, consisting of high level radioactive waste, was detected below a depth of 31 feet in the alluvium. Based on the type of waste that was released from site CPP-79, the presence of high level radioactive contamination was not expected during the Track 2 investigation.	This site is recommended for additional characterization to determine the extent of the high level radioactive contamination detected in the alluvium below 31 feet as part of the Comprehensive RI/FS for WAG 3.	Given the high uncertainty in the characterization of the contamination detected at this site, it is not possible to perform a Track 2 risk assessment for the ground water pathway. Additional data is required to quantify the risk via this pathway.
CPP-83 Well 55-06	Based sampling results there are increasing concentrations of Sr-90 in this well. In addition, it has not been able t determine whether one, or multiple water bodies are present based on the fluctuating water levels. The source of the contamination and the source for the recharge are unknown.	Comprehensive RI/FS - Based upon currently available information, a risk for this site cannot be determined. It is recommended that additional work be performed in order to fill currently identified data gaps necessary to determine the risk through the ground water pathway..	Currently there is insufficient data to evaluate the contamination source and associated risk from the perched water. This includes both extent of existing contamination as well as recharge source. In addition, there is increasing concentrations of Sr-90 in Wells 55-06 and TF-2.

The recommendations provided in Table 6-1 are consistent with the options stated in the Action Plan for the FFA/CO for a Track 2 investigation. A No Further Action is recommended for several of the sites where the contamination has been removed or the risk was determined to be low. The consequences of error for these No Further Action sites are minimal because the potential risks posed by the other sites within the Tank Farm will likely necessitate some type of remedial action. Any remedial actions that are implemented for the Tank Farm will also effect these No Further Action sites. The remaining sites within OU 3-07 are recommended for inclusion in the Comprehensive RI/FS. It is intended that by including these sites into the Comprehensive RI/FS, the risks from the contamination within the Tank Farm can be assessed as a single site and this should facilitate the evaluation of any potential future remedial actions.

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