



RDMS DocID 106929

RCRA RECORDS CENTER
FACILITY Maine Yankee
ID NO. MED 071 749 329
FILE LOC. R-13
OTHER 106929

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

**RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)
Migration of Contaminated Groundwater Under Control**

Facility Name: Maine Yankee Atomic Power Company
Facility Address: 321 Old Ferry Road Wiscasset, Maine
Facility EPA ID #: MED 071 749 329

1. Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

X If yes - check here and continue with #2 below.

If no - re-evaluate existing data, or

if data are not available, skip to #8 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 2

2. Is **groundwater** known or reasonably suspected to be “contaminated”¹ above appropriately protective “levels” (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

 X If yes - continue after identifying key contaminants, citing appropriate “levels,” and referencing supporting documentation.

_____ If no - skip to #8 and enter “YE” status code, after citing appropriate “levels,” and referencing supporting documentation to demonstrate that groundwater is not “contaminated.”

_____ If unknown - skip to #8 and enter “IN” status code.

Rationale and Reference(s): Groundwater is not used as a drinking water supply at this site. Site investigations from late 1980s determined that the issues of concern were petroleum discharges, VOCs and most recently two metals, arsenic and manganese. The Bailey Point RFI investigation revealed contaminants that were, in general, related to some aspect of early (1970s) plant construction and/or 25 years of operation. The contaminants detected at concentrations greater than Project Action Levels (PALs), defined as the lesser of the Maximum Exposure Guidelines (MEGs) or the Maximum Contaminant Levels (MCLs): aluminum, arsenic, boron, lead, manganese, molybdenum, silver, sodium, thallium, dieldrin, heptachlor, 4-methylphenol, 1,1,1, trichloroethane, 1,1, dichloroethane, 1,1, dichloroethene, ethylbenzene, vinyl chloride, and DRO. See Table 5-13 attached for maximum detected concentrations found, the MEGs and MCLs listed. Some contaminants were introduced to surface and/or subsurface soil through accidental spills or leaks, while other contaminants may not have been directly associated with plant activities, but were released from placement of dredge materials and pH interactions with natural, geologic materials which released elevated levels of manganese. Elevated arsenic appears to be naturally occurring when compared to background levels.

Groundwater in the Industrial and Radiological Restricted Areas (RA) which is the southern portion of the site, contains sodium concentrations that exceed Project Action Levels (PALs), most likely as a result of saltwater intrusion, operational dosing of seawater used as cooling water, a late 1980s sodium chromate leak, and winter salt application on site roadways. Groundwater in the Industrial and Radiological Restricted Areas contains DRO concentrations ranging from 100 to 500 ppm with a maximum of 581 ppm, most likely as a result of historical petroleum releases, former USTs and other non-point sources such as vehicles and equipment.

Dieldrin was found in several bedrock wells in and near the RA in concentrations exceeding the PALs with maximum of 0.11 ppb, most likely from placement of contaminated fill during construction. Groundwater east and south of Warehouse 2/3 contains Trichloroethane (535 ppb) and related chlorinated daughter products that exceed PALs (240 to 190ppb), most likely as a result of solvent leakage from drum storage and management activities. Groundwater west of Warehouse 2/3 contains Benzene (3.7 ppb), Toluene (2 ppb), Ethylbenzene (160 ppb) , Xylenes (170 ppb) or BTEX compounds. Some paint related metals were also detected around Warehouse 2/3.

For the northern portion of the site, groundwater beneath the dredge spoil disposal area north of the ISFSI and the 345 kV Switchyard contains elevated metals, including boron with maximum of 245 ppm, sodium 428 ppm, iron at 543 ppm and manganese at 418 ppm concentrations that exceed the PALs established for the site. These levels were most likely a result of the historic filling of the marsh area with marine sediments. Groundwater in most of the wells north of the former staff building which as the site high point is commonly referred to as the knoll and contains DRO and EPH concentrations in excess of MEGs, most likely as a result of the kerosene and historical petroleum spills discovered within Study Area 4 (ISFSI), pre-operational features such as the Former Truck Maintenance Garage, and miscellaneous sources within the marine sediment/construction debris disposal area north of the 345 kV Switchyard.

Across much of the northern and southern Bailey Point areas, molybdenum concentrations in groundwater exceeded the PALs with a maximum of 31.7 ppm. The source of molybdenum is unclear; possible sources are petroleum lubricant spills and natural rock minerals.

Exposure to arsenic is associated with an individual carcinogenic risk greater than 10^{-4} . Exposure to dieldrin, heptachlor, trichloroethene and vinyl chloride is associated with individual carcinogenic risk estimates greater than 10^{-5} . Exposure to arsenic, iron, manganese and molybdenum are associated with noncarcinogenic Health Indices (HIs) greater than 1.0.

A groundwater restrictive covenant has been proposed for the property to prevent any future residential use of groundwater.

References:

Maine Yankee Compliance order, 2005,
Maine Yankee Bailey Point RFI report December 2004 and CMS report March/June 2005,
Procedural Guidelines for Establishing Standards for the Remediation of Oil Contaminated Soil and Groundwater in Maine,
Regional Location Map for Bailey Point. Figure 1-2 (RFI),
Plant Structures Figure 1-4 (RFI), and
Known or Suspected Contamination Sources Figure 2-1 (RFI).

Footnotes:

¹“Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate “levels” (appropriate for the protection of the groundwater resource and its beneficial uses).

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within “existing area of contaminated groundwater”² as defined by the monitoring locations designated at the time of this determination)?
- X If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the “existing area of groundwater contamination”².
- If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the “existing area of groundwater contamination”²) - skip to #8 and enter “NO” status code, after providing an explanation.
- If unknown - skip to #8 and enter “IN” status code.

Rationale and Reference(s): Groundwater contamination at the Maine Yankee site includes both site-wide contaminants and focused areas of compound-specific contamination. DRO and metals (sodium, iron, and manganese) occur across the Site, while VOCs are focused on both the east and west sides of Warehouse 2/3. Paint-related solvents (ethylbenzene, xylenes, and toluene) occur in shallow groundwater on the west side of the Warehouse 2/3 and chlorinated-VOCs (1,1,1-trichloroethane and degradation products) are present in shallow groundwater on the east side of the warehouse. Paint-related VOCs in soil has resulted in high concentrations of the VOCs in soils at the soil/bedrock interface, and elevated concentrations of xylenes and ethylbenzene in the shallow bedrock groundwater directly downgradient of the soil contamination. In June 2004 750 cubic yards of contaminated soil was excavated and the source removed from the site. Based on groundwater contours developed from groundwater elevation measurements, it appears that groundwater in this area is moving westerly towards Bailey Cove.

Ethylbenzene exceeds the MEG of 70 ug/l, and vinyl chloride exceeded the MEG of 0.2 ug/l in the second round of testing, but was non-detect in the first sampling round. Other VOCs present are benzene, xylenes, and toluene. These VOCs have relatively high water solubilities and readily partition into groundwater.

Petroleum hydrocarbons, such as benzene, xylenes, and toluene, are biodegraded via biological oxidation and will proceed until all of the contaminants that are biochemically accessible to the microbes are oxidized. It is expected that now that the contamination source has been removed the VOC and related parameter concentrations will decrease to background concentrations via biodegradation and natural attenuation processes over time.

Maine Yankee historically stored trichloroethane (TCA), a solvent, in 55-gallon drums at Warehouse 2/3. There is an identifiable TCA plume in the bedrock groundwater. TCA has migrated through the overburden soils via infiltration processes, and has degraded groundwater quality in the shallow bedrock aquifer. Observed concentrations of TCA indicate only the presence of a dissolved phase, and no separate dense non-aqueous phase liquid (DNAPL). A DNAPL concern would be indicated when TCA concentrations in groundwater were within 1% of the solubility limit (9,500 ug/l). The highest observed TCA concentration is 670 J ug/l, orders of magnitude below the 1% solubility value.

In addition to TCA, wells also have daughter compounds 1,1 dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), and vinyl chloride (VC) associated with the degradation of TCA. The State of Maine MEGs for the four constituents of concern in this plume are 200 ug/l for TCA, 70 ug/l for 1,1-DCA, 0.6 ug/l for 1,1-DCE, and 0.2 ug/l for VC. MEGs are exceeded for all four parameters but by the largest magnitude with 1,1-DCE at 190 ug/l. The transformation of TCA to the daughter compounds provides one line of evidence that the TCA is undergoing natural degradation in the environment. The highest concentration of 1,1,1-TCA in the monitoring wells downgradient is 6 ug/l, and 1,1-DCA and 1,1-DCE have concentrations less than 1 ug/l in the downgradient wells. The reductive and oxidative degradation processes have resulted in significant natural degradation and attenuation of the chlorinated compounds to concentrations below the State of Maine MEGs in the downgradient monitoring wells.

Iron, manganese, and to a much lesser extent, arsenic are naturally occurring geologic materials that have dissolved into the groundwater. These metals are not likely to become lower in concentration with time. Sodium has a number of sources on the site and occurs broadly over the site in concentrations exceeding the State of Maine MEG.

The State of Maine does not have a standard for iron in groundwater and there is no MCL for iron, the US EPA preliminary remediation goal (PRG) for iron (11 mg/l) is exceeded in the north-central and northwestern portion of Bailey Point. The MEG for manganese is 0.5 mg/l, and much of the Bailey Point groundwater exceeds the MEG. The source of iron and manganese in groundwater are believed to come from natural geologic materials. It appears that the zone of very high iron and manganese concentrations in the northern portion of Bailey Point coincides with the known location of the former salt marsh under the dredge spoils fill area. Iron and manganese are not likely to decrease in concentration in this area in the foreseeable future.

Molybdenum is a constituent of petroleum-based lubricants, it is part of some steel alloys and it can occur naturally. The MEG for molybdenum is 35 ug/l. The range of molybdenum in Maine Yankee groundwater is from non-detect to 3,170 ug/l. Contouring of recently collected sample data suggests a large area of Bailey Point exceeds the MEG for molybdenum and was screened and noted in bedrock cores indicating it as a potential natural source of the molybdenum.

Most of Bailey Point has groundwater with sodium concentrations exceeding the MEG. The gradual purging of the groundwater of high sodium is occurring from east to west in the shallow wells. The MEG for sodium is 20 mg/l, which is relatively close to background values of sodium that would normally occur in wells within 100 feet of the ocean in Maine. In addition, boron is a natural constituent of seawater. Elevated boron concentrations were observed in groundwater in the northwestern corner of Bailey Point. Elevated boron levels are associated with high sodium identified in that area, which was derived from the seawater that formed the pore water of the deposited, dredged marine sediments in this area. Elevated aluminum and arsenic are most likely derived from natural geologic materials.

The most prevalent groundwater contaminant on the Maine Yankee site is petroleum hydrocarbons. Numerous lubricant and fuel spills have been documented, and all of the identified spills have been remediated to an industrial standard. Once dissolved in groundwater,

the petroleum hydrocarbons will biodegrade oxidatively if a source of oxygen or other electron acceptor is available. The highest concentrations of DRO were found in the northern portion of Bailey Point. Concentrations are typically in the range of several hundred micrograms per liter. Most of Bailey Point appears to have groundwater concentrations greater than 50 ug/l for DRO. The highest observed concentration of DRO in the Radiological Restricted Area (RA) is 2,350 ug/l.

Because many of the petroleum sources may be somewhat dispersed, limited in size, and associated with the construction activities during the 1960 and early 1970s, most of the readily leachable fraction of petroleum has likely been removed from the original source material and dissolved in groundwater. Additional leaching of petroleum hydrocarbon constituents to the groundwater is expected to be slow, but relatively constant.

The biodegradation of petroleum hydrocarbons is mainly limited by electron acceptor availability, and will proceed until all of the contaminants that are biochemically accessible to the microbes are oxidized. Recent groundwater sampling has demonstrated that significant concentrations of electron acceptor and metabolic byproducts are present in groundwater across the site. The presence of both electron acceptors and metabolic byproducts indicates that natural biodegradation of dissolved DRO is occurring in groundwater.

The March/June 2005 Corrective Measures Study compared alternative remedial options. The report concluded that a pump and treat program even when combined with aggressive soil remediation provided no assurance that the proposal would work and would cost a significant amount of money. Over time concentrations of contaminants will decrease and a restrictive covenant is being placed on the property to limit future exposures to groundwater and soil excavations.

Reference: Bailey Point RFI and CMS

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

4. Does “contaminated” groundwater **discharge** into **surface water** bodies?

_____ If yes - continue after identifying potentially affected surface water bodies.

 X If no - skip to #7 (and enter a “YE” status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater “contamination” does not enter surface water bodies.

_____ If unknown - skip to #8 and enter “TN” status code.

Rationale and Reference(s). The industrial complex known as Maine Yankee consists of a parcel referred to as Bailey Point which is about 150 acres and lies within the Bailey Point peninsula. Tidal waters of Montsweag Bay which are a part of the Sheepscot River estuary system surrounds most of Bailey Point. The site is bounded by a new commercial enterprise to the north called the Ferry Road Development Co. LLC doing business as Point East, and to the east, south and west by open water. Groundwater modeling shows the site to have a complex aquifer. The nearest residences are located approximately 1,000 feet to the west, and are served by public water from the Wiscasset Water District. There are no active private wells within 1,000 feet of the site nor are there any known in any downgradient direction. There are no sand and gravel aquifers in the vicinity of the site.

Bailey Point is a natural peninsula which is surrounded on three sides by surface water. Impacted groundwater does not flow towards the north. All associated storm water outfalls were initially sampled to verify those impacted by plant activities. Five surface water locations were subjected to additional sampling from areas downgradient or within areas of suspected contamination. These seep locations included the main discharge point from the plant known as the “forebay”, near the 345 kV Transmission line area, outfall No. 11 to the Back River and a small pond where an early “cleaning basin” exited prior to plant operation were all sampled. With the exception of three metals (aluminum, lead and zinc) and low levels of petroleum compounds identified in the seeps, all other compounds are below the surface water PALs. No significant impacts to surface water were identified.

An ecological risk assessment was conducted for the shoreline around Bailey Point and is comprehensively describe in Section 6 of the RFI. This study area included both the intertidal and subtidal zones where the majority of industrial area storm water discharges occurred. Seventy sediment, 47 biota (clams & mussel) samples, three sediment samples from the mudflats near the 345 kV Switchyard and two sets of mummichog samples were collected. Results from the initial sediment screening determined three outfalls required further investigation. Additional testing for sediment toxicity and benthic community structure was performed at an intertidal location for both Outfall 05-06 and Outfall 10, and a subtidal study was done for Outfall 09. PAH contamination below Outfall 09 required additional remediation of sediment removal which was conducted over a two year period. Post remediation sampling shows that sediments are now comparable to the reference site.

Reference: Bailey Point RFI & CMS.

³“existing area of contaminated groundwater” is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of “contamination” that can and will be sampled/tested in the future to physically verify that all “contaminated” groundwater remains within this area, and that the further migration of “contaminated” groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

5. Is the **discharge** of “contaminated” groundwater into surface water likely to be “**insignificant**” (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater “level,” and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

 X If yes - skip to #7 (and enter “YE” status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of “contaminated” groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration³ of each contaminant discharged above its groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater “levels,” the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter “IN” status code in #8.

Rationale and Reference(s): Five surface water locations were sampled from areas downgradient or within areas of suspected contamination within Study Area 5; seep locations on the Bailey Cove side of the forebay and 345 kV Transmission Line area, excess flow from Outfall 011 to Back River, and the small pond in the northern portion of Bailey Point where a cleaning basin existed prior to operation. Most compounds were below surface water PALs. The three metals of concern are aluminum, lead and zinc and were carried forward and assessed during the risk assessment process. The seep areas were considered so small in size relative to receiving water bodies (Back River and Bailey Cove) and consist of low, intermittent flows, that no further action was required.

Reference: Bailey Point RFI

³ As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

6. Can the **discharge** of “contaminated” groundwater into surface water be shown to be “**currently acceptable**” (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

 NA If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site’s surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR
2) providing or referencing an interim-assessment,⁵ appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment “levels,” as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

 If no - (the discharge of “contaminated” groundwater can not be shown to be “**currently acceptable**”) - skip to #8 and enter “NO” status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

 If unknown - skip to 8 and enter “IN” status code.

Rationale and Reference(s):

⁴ Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵ The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the “existing area of contaminated groundwater?”

 X If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the “existing area of groundwater contamination.”

 If no - enter “NO” status code in #8.

 If unknown - enter “IN” status code in #8.

Rationale and Reference(s): Most of the groundwater on the Bailey Point site that exceeds MEGs is in low permeability clay-silt or in fractured bedrock. Furthermore, some of the chemicals that exceed MEGs are being continually generated (e.g., the manganese under the 345 kV lines due to filling of dredge spoils over a former salt-marsh). Therefore, most of the groundwater under Bailey Point that has been negatively affected by site activities and are difficult to actively remediate through any reasonable means. Many of the contaminants, however, will be reduced over time by flushing from the system and normal biodegradation processes. Long-term groundwater monitoring will continue to characterize current site conditions and then evaluate changes, if any, in groundwater quality through time. Groundwater impacts for the entire site are summarized in Table 5-13. Twenty three monitoring wells will be monitored over the next three to eight years at a minimum. See Figure G-1 for well locations.

The long-term groundwater monitoring plan includes an initial three year period of quarterly groundwater sampling. This initial portion of the long-term monitoring plan would be used to establish baseline conditions. Following completion of the baseline program, sampling would be conducted three times per year (“tri-annual”) every five years. In years 29 and 30 of the monitoring program, all wells still in the program would be sampled three times each year. This thirty year monitoring program will allow the Department to maintain a reasonable oversight role while determining if the site contaminants are decreasing or increasing over time. With time, reasonable modifications to wells or parameters to be maintained could be made every five years that are appropriate for the site. Wells could be eliminated after sufficient documentation is gathered to demonstrate that contaminants are no longer present.

A restrictive covenant is being placed on the property preventing any future residential drinking water use of groundwater.

Reference: Bailey Point CMS March & June 2005
Proposed RCRA Groundwater Monitoring Well Locations Figure G-1 (CMS)
Bailey Point RFI, December 2004

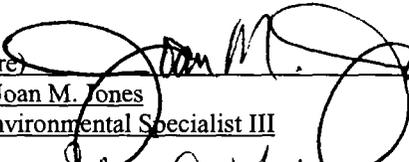
**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

1. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

 X YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the Maine Yankee facility, EPA ID # 071 749 329, located at 321 Old Ferry Road Wiscasset, Maine. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

 NO - Unacceptable migration of contaminated groundwater is observed or expected.

 IN - More information is needed to make a determination.

Completed by (signature)  Date 9-30-05
 (print) Joan M. Jones
 (title) Environmental Specialist III

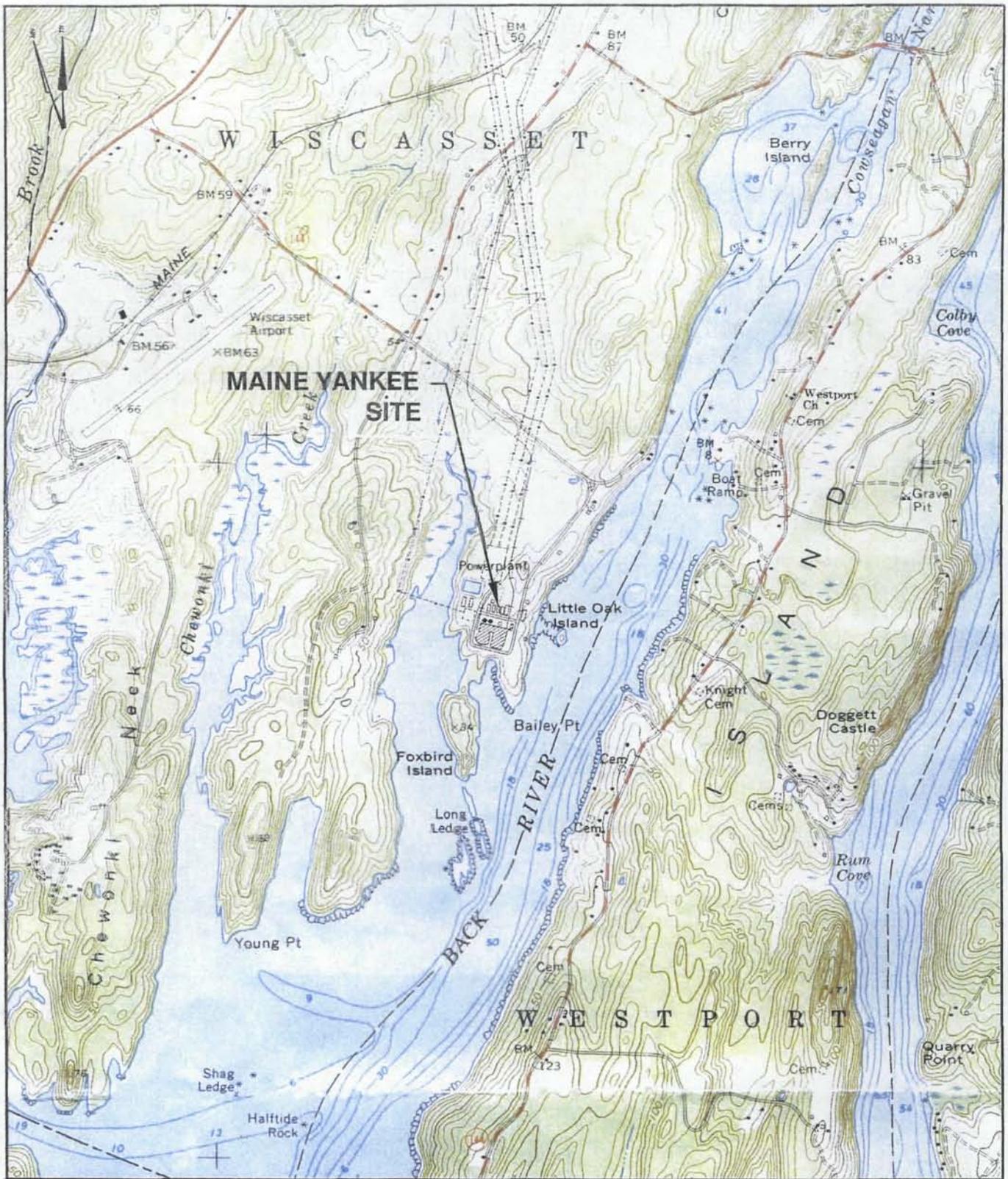
Supervisor (signature)  Date 9-30-05
 (print) Stacy A. Ladner
 (title) Unit Manager
 State-Maine

Locations where References may be found:
Maine DEP File Room, Augusta, Maine 04333

Contact telephone and e-mail numbers

(name) Joan M. Jones
(phone #) 207-287-7879
(e-mail) Joan.M.Jones@maine.gov

EI 750 Maine Yankee.doc /C



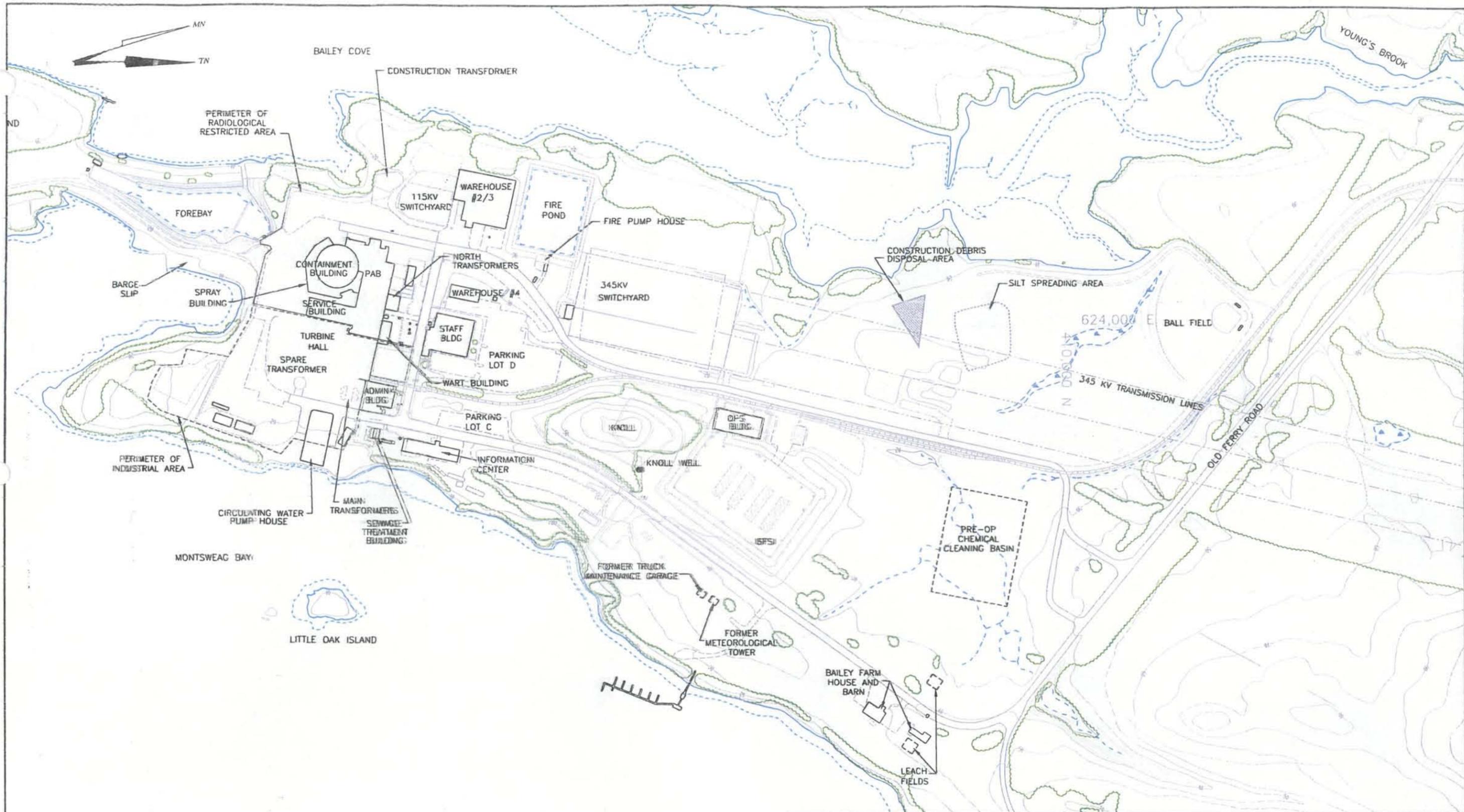
Maine Yankee

MAINE YANKEE RCRA CLOSURE - Bailey Point RFI Report



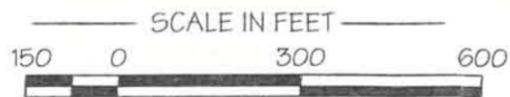
DRAWINGS PRODUCED BY: CH2MHILL, STRATEX JACQUES WHITFORD COMPANY				
DATE PREPARED: 09-02-03	DESIGNED BY: NOS	DRAWN BY: BSB	CHECKED BY: NOS	REVIEWED BY: RGG
PROJECT NAME/FILE NAME: BAILEY/REGIONAL LOC		PROJECT NUMBER/PHASE: MEPO2167/8A		SCALE: 1:24000

DRAWING TITLE: REGIONAL LOCATION MAP WISCASSET, MAINE WESTPORT QUADRANGLE, ME - 43069-H6-TF-025 (1970)
FIGURE NO. 1-2
PREPARED FOR: MAINE YANKEE ATOMIC POWER CO, Wiscasset, ME



LEGEND:

- RAILROAD
- TOPOGRAPHIC CONTOURS (10-FT INTERVALS)
- UTILITY LINES (USGS QUAD)
- WATER WAY / STREAM / RIVER



ORIGINAL BASE MAP INFO OBTAINED FROM:
JAMES SEWALL COMPANY

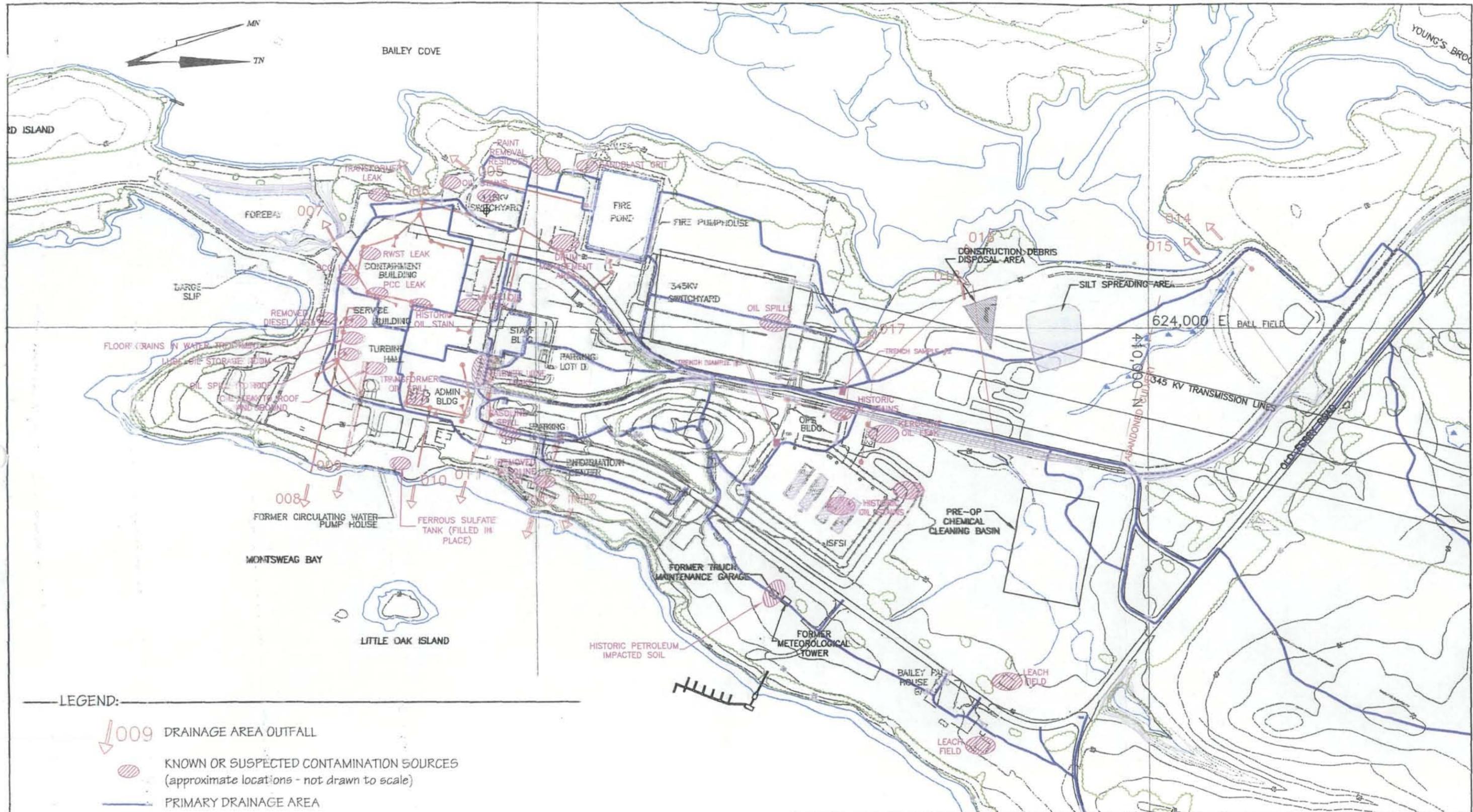
Maine Yankee



MAINE YANKEE RCRA CLOSURE - Bailey Point RFI Report

DRAWINGS PRODUCED BY: CH2MHILL, STRATEX JACQUES WHITFORD COMPANY				
DATE PREPARED: 09-02-03	DESIGNED BY: NOS	DRAWN BY: BSB	CHECKED BY: NOS	REVIEWED BY: RGG
PROJECT NAME/FILE NAME: BAILEY/BPRCRA		PROJECT NUMBER/PHASE: MEP02167/BA	SCALE: 1"=300'	

DRAWING TITLE: PLANT STRUCTURES	FIGURE NO. 1-4
PREPARED FOR: MAINE YANKEE ATOMIC POWER CO, Wiscasset, ME	



LEGEND:

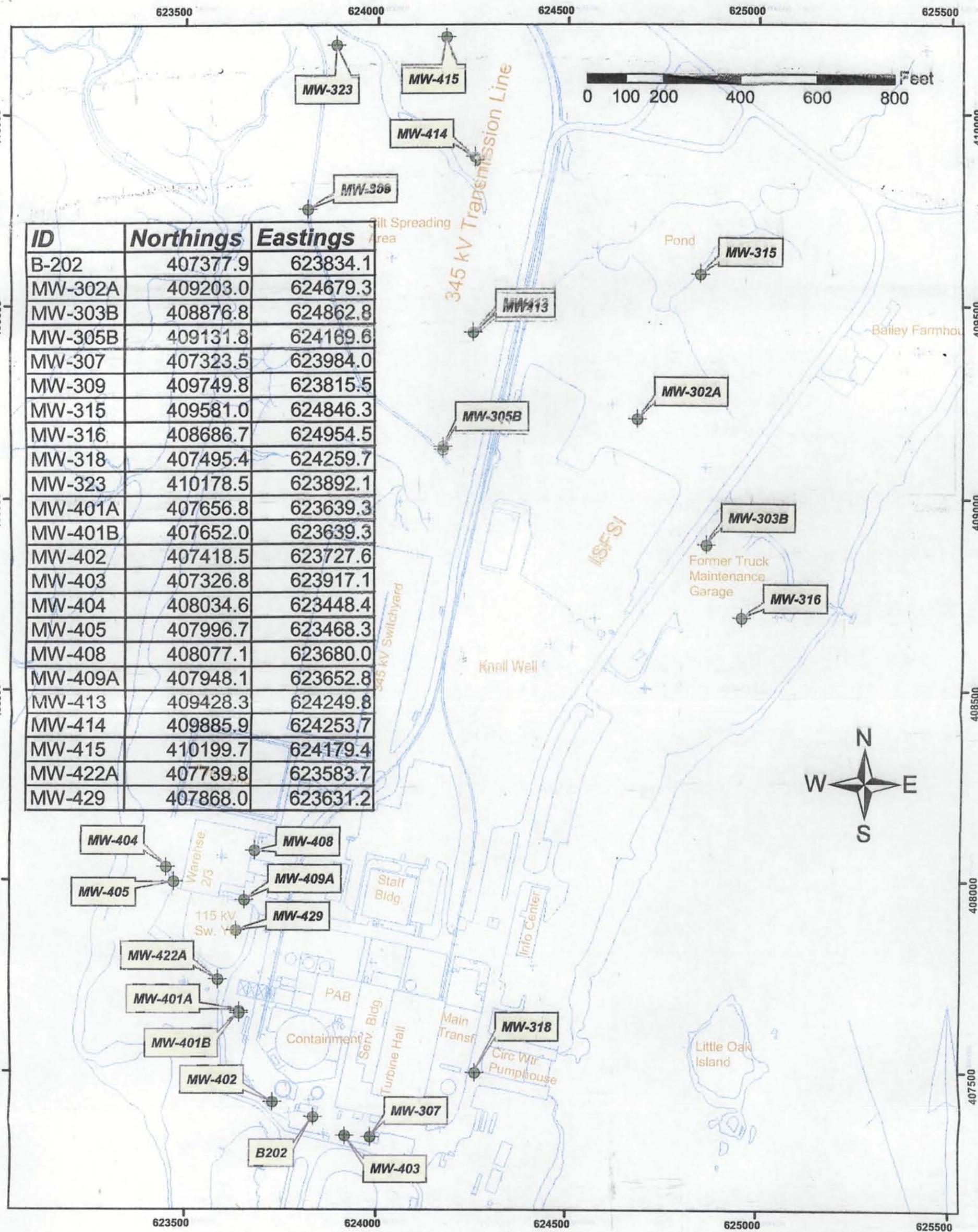
- 009 DRAINAGE AREA OUTFALL
- KNOWN OR SUSPECTED CONTAMINATION SOURCES (approximate locations - not drawn to scale)
- PRIMARY DRAINAGE AREA
- BURIED STORMWATER PIPING AND CATCHBASINS
- RAILROAD
- TOPOGRAPHIC CONTOURS (10-FT INTERVALS)
- UTILITY LINES (USGS QUAD)
- WATER WAY / STREAM / RIVER



ORIGINAL BASE MAP INFO OBTAINED FROM:
JAMES SEWALL COMPANY

Maine Yankee

MAINE YANKEE RCRA CLOSURE - Bailey Point RFI Report				
DRAWINGS PRODUCED BY: CH2MHILL, STRATEX JACQUES WHITFORD COMPANY				
DATE PREPARED: 09-02-03	DESIGNED BY: NOS	DRAWN BY: BSB	CHECKED BY: NOS	REVIEWED BY: RGG
PROJECT NAME/FILE NAME: BAILEY/BPRCRA	PROJECT NUMBER/PHASE: MEP02167/BA	SCALE: 1"=300'	DRAWING TITLE: KNOWN OR SUSPECTED CONTAMINATION SOURCES	
PREPARED FOR: MAINE YANKEE ATOMIC POWER CO, Wiscasset, ME				FIGURE NO. 2-1



ID	Northings	Eastings
B-202	407377.9	623834.1
MW-302A	409203.0	624679.3
MW-303B	408876.8	624862.8
MW-305B	409131.8	624169.6
MW-307	407323.5	623984.0
MW-309	409749.8	623815.5
MW-315	409581.0	624846.3
MW-316	408686.7	624954.5
MW-318	407495.4	624259.7
MW-323	410178.5	623892.1
MW-401A	407656.8	623639.3
MW-401B	407652.0	623639.3
MW-402	407418.5	623727.6
MW-403	407326.8	623917.1
MW-404	408034.6	623448.4
MW-405	407996.7	623468.3
MW-408	408077.1	623680.0
MW-409A	407948.1	623652.8
MW-413	409428.3	624249.8
MW-414	409885.9	624253.7
MW-415	410199.7	624179.4
MW-422A	407739.8	623583.7
MW-429	407868.0	623631.2

 	MAINE YANKEE RCRA CLOSURE - Bailey Point CMS Report				DRAWING TITLE: Proposed RCRA Groundwater Monitoring Well Locations	
	DRAWINGS PRODUCED BY: CH2MHILL, STRATEX JACQUES WHITFORD COMPANY					
	DATE PREPARED: Mar. 1, 2005	DESIGNED BY: RGG	DRAWN BY: RGG	CHECKED BY: RGG		REVIEWED BY: RGG
	PROJECT NAME/FILE NAME: BAILEY/BPRCRA	PROJECT NUMBER/PHASE: MEP02167/8A	SCALE: 1"=250'	PREPARED FOR: MAINE YANKEE ATOMIC POWER CO.		FIGURE NO. G-1

Table 5-13
Comparison of Groundwater Constituents to MEGs and MCLs

Groundwater Constituents	Maximum Detected Concentration (ug/L)		State MEG (ug/L)	Federal MCL (ug/L)
DRO	5810*	J	50	
ALUMINUM	3850		1430	
ANTIMONY	0.03	J	3	6
ARSENIC	23.3		10	50
BARIUM	266		2000	2000
BERYLLIUM	1.2	J		
BORON	2450		630	
CADMIUM	1.7		3.5	5
CALCIUM	681000			
CHROMIUM	22.2		40	
COBALT	61	J		
COPPER	296		1300	1300
IRON	543000			
LEAD	19		10	15
MAGNESIUM	718000			
MANGANESE	41800		500	
MERCURY	0.59		2	2
MOLYBDENUM	3170		35	
NICKEL	139		140	
POTASSIUM	143000	J		
SELENIUM	21	J	35	50
SILVER	50		35	
SODIUM	4280000		20000	
THALLIUM	3.3		0.5	2
VANADIUM	21			
ZINC	491		2000	
DIELDRIN	0.11	J	0.02	
HEPTACHLOR	0.52		0.08	0
2-METHYLPHENOL	3.7			
4-METHYLPHENOL	16.5		3.5	
BIS(2-ETHYLHEXYL)PHTHALATE	7	J		
DI-N-BUTYLPHTHALATE	1	J	700	
NAPHTHALENE	3	J	14	
PHENOL	265		4000	200
1,1,1-TRICHLOROETHANE	535	J	200	5
1,1,2-TRICHLOROETHANE	0.4	J	6	
1,1-DICHLOROETHANE	240		70	7
1,1-DICHLOROETHENE	190		0.6	5
1,2-DICHLOROETHANE	2		4	
2-BUTANONE	15		1440	
ACETONE	23	J	700	
BENZENE	3.7		12	
BROMODICHLOROMETHANE	2		6	
BROMOMETHANE	1	J	10	
CHLOROFORM	36		57	
CHLOROMETHANE	3		3	
ETHYLBENZENE	160		70	700
M/P-XYLENE	340		14000	10000
METHYLENE CHLORIDE	1	J		
O-XYLENE	170		14000	10000
TOLUENE	2		1400	1000
TRICHLOROETHENE	4		32	5
VINYL CHLORIDE	2	J	0.2	2
NITRATE	3135		10000	10000

Note: Bold indicates compound exceeds either its MEG or MCL.

* - sample collected from the PAB sump. Not considered representative of groundwater quality.

J - estimated concentration

MEG - Maximum Exposure Guideline

MCL - Maximum Contaminant Level