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Archaeological Reconnaissance Survey of Bikej Island, Kwajalein Atoll:

A Preliminary Survey Conducted by the Historic Preservation Office for the Environmental Protection Authority

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HPO Report 1999/01

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Archaeological Reconnaissance Survey of Bikej Island, Kwajalein Atoll

Introduction

This report covers the archaeological reconnaissance survey conducted by the Historic Preservation Office on Bikej Island, Kwajalein Atoll on 25 May 1999. The purpose of the trip was to survey the debilitated oil tanks constructed by the Japanese prior to WWII. These tanks have long since fallen into disrepair with large amounts of oil leaking into the ground surrounding the tanks. The HPO conducted an archaeological reconnaissance survey in order to assess the archaeological impact an environmental clean up would have on the cultural sites on the island. The survey was conducted by Richard Williamson, HPO archaeologist, and Hemley Benjamin, HPO assistant archaeologist. Abon Jeadrik, city manager of KALGOV, accompanied and assisted. No USAKA staff members were present.

General Observations

The only sites surveyed on Bikej were the oil tanks. Eight oil tanks were surveyed and recorded. All the tanks had some amount of oil within the confines of the tank. Some of the tanks had oil leaking into the surrounding ground. Three of the tanks were over 30 meters wide, the other five were approximately 15 meters wide. The larger tanks were all in a better state of preservation, with the walls partially intact and ceiling beams collapsed within the confines of the tank. The smaller tanks were almost completely destroyed. The larger tanks, having more oil in them originally, had more oil surrounding the tanks. All of the tanks had an earthen embankment that surrounded the tanks. Some of the tanks were connected by a visible pipeline. In one instance (MI-KW-BJ-003), the pipeline extended for over 10 meters.

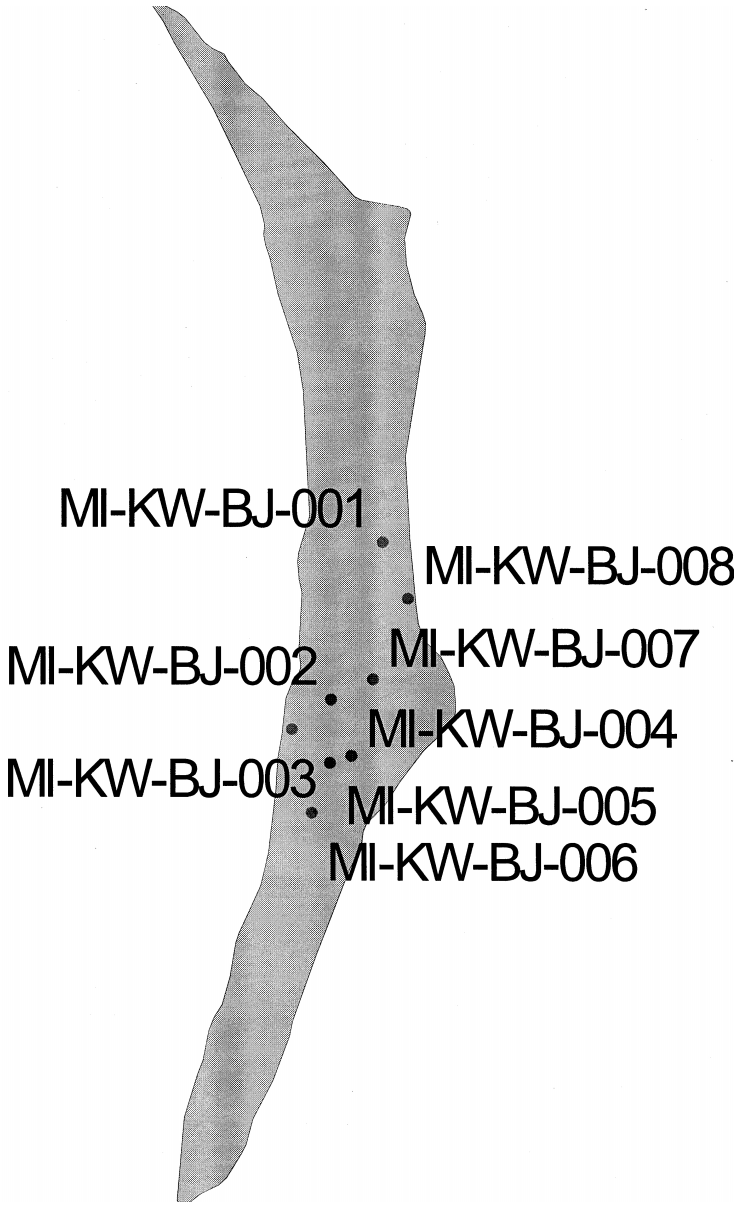
Recommendations

It is recommended that archaeological monitoring be required during all stages of the clean up and that the HPO be included in all stages of clean up preparation. The reasons that monitoring is required is as follows:

1) This was a surface survey only, meaning that no subsurface excavations were conducted, so it is possible that there are still features buried in the soil near the tanks that were not observed.
2) As each tank is surrounded by an earthen embankment and some of the tanks were connected by a pipeline, it is logical to assume that other subsurface features are present and could be destroyed without proper monitoring.
3) If it becomes necessary to destroy the tanks in the process of the clean up, proper archaeological excavations will be required before hand.
4) The preservation of the larger tanks, in conjunction with the overall interconnectedness of all the tanks, classifies these sites as archaeologically very significant.

Sites

A complete description of each site follows. See Map 1 for the location of each site.



Map 1. Sites located on Bikej Island, Kwajalein Atoll, Marshall Islands.

MI-KW-BJ-001 (Marshall Islands-Kwajalein Atoll-Bikej Island-Site No. 1)
Site number one on Bikej Island is Tank One. This is one of the larger tanks, measuring 30 meters in diameter. This tank's preservation is quite good with the walls of the tank surviving up to 4.5 meters in some places (Fig. 1).

Figure 1. Interior walls of Tank One.

The surface within the tank can only be described as oily goo. It would appear that the porous nature of coral allowed for the oil to be absorbed by the coral and then almost liquefied the coral itself. While this action occurred within and around all the oil tanks, Tank One had by far the largest extent of oil leakage. Oil extends beyond the perimeter of the tank by approximately 100 meters. This site will be the most difficult to clean up by far. Below the surface, a metal floor was discovered. The condition of the floor is unknown, although it is assumed that it is completely rusted. On the surface, within the oil tank is large amounts of small rusted metal, indicating that the tank once had a metal ceiling. This is further posited by the extensive cross beams that supported the ceiling that litter the interior of the tank (Fig. 2). The remarkable condition of the tank classifies it as archaeologically very significant.

Figure 2. Cross Beams of Tank One.

MI-KW-BJ-002

Tank 2. Tank 2 is the smallest tank with a diameter of 5m. The preservation of the tank is not remarkable (Fig. 3). This tank also contains the thickest and most concentrated remains of oil. (Fig. 3). The oil slick covers the entire surface of the tank and measures 15 cm deep. At that point the remains of floor was probed. The walls are almost completely destroyed, but there are remnants of steel beams that indicate a ceiling. The preservation of this tank in conjunction with the other tanks makes this site archaeologically significant.

Figure 3. Tank Two

MI-KW-BJ-003

Tank 3. Tank 3 has a diameter of 15 meters. It has less oil and more vegetation growing inside (Fig 4). The oil seems self-contained. The preservation of this tank is also quite

Figure 4. Tank Three

poor. This tank does have a well-preserved pipeline connected into the tank (Fig 5). The pipeline continues for several meters outside the tank (Fig 6). This site is considered archaeologically very significant.

Figure 5. Tank Three's Connection to a Pipeline

Figure 6. Pipeline Running Outside of Tank 3.

MI-KW-BJ-004
Tank 4. Tank 4 is also a smaller tank. It measures 16.5m in diameter. Also almost completely destroyed. The walls average only 10cm in height. Also has a pipeline connected to it. An earthen embankment surrounds this tank. This site is archaeologically significant.

MI-KW-BJ-005
Tank 5. Tank 5 is almost exactly like tank 4. It measures 16.5m in diameter. It is almost completely destroyed. The walls average 30-40cm in height. Interior roofs beams lie within the center of the tank. An earthen embankment surrounds the tank. There is very little oil. This site is archaeologically significant.

MI-KW-BJ-006
Tank 6. Tank 6 is like tank 4 and 5. 16.5 m diameter. Almost completely destroyed. Walls average 30-40cm in height. Interior roof beams. Earthen embankment. Very little oil. This site is archaeologically significant.

MI-KW-BJ-007
Tank 7. Tank 7 is the same size as Tank 1, 30m in diameter. Its preservation is as good as Tank 1 as well. Its walls are preserved to a height of 3m. Oil in the interior on Tank 7 is quite high, however, there is very little oil surrounding the tank as it does with Tank 1. This site is archaeologically very significant.

MI-KW-BJ-008
Tank 8. Tank 8 is the same size as Tanks 1 & 7, 30 m in diameter. Its preservation is also quite good. Its walls are preserved to a height of any where between 2 and 4 meters. Heavy oil residue within the tank. Very little oil outside the tank. Has an earthen embankment. This site is archaeologically very significant.

Conclusions

As stated in the Introduction, the purpose of the survey was to asses the archaeological impact of an environmental clean up on Bikej Island. What was discovered was a series of tanks that are all related to each other, and therefore are archaeologically more significant as a whole than any one tank is separately. The discovery of pipelines connecting the tanks proves that they all form a single integral unit. Given that there may be more pipes underground (only the surface pipes were recorded), it is imperative that archaeological monitoring occurs at all stages of clean up. Given the possible impact upon these historic sites, it is also recommended that the HPO be included in the planing stages as well.